



**International Congress of Supportive
Care of Patients with Childhood Cancer**

Urmia-Iran, 18-20 September 2019



Booklet



International Congress of Supportive Care of Patients with Childhood Cancer

Urmia-Iran, 18-20 September 2019



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**Key
Lecture**

Key Lecture

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18-20 September, 2019



Renal Toxicity of the chemotherapy

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Renal toxicity is one of the most important complication of chemotherapy. So it is necessary to take of nephrologists in management of patients with cancer. The cooperation of nephrologists and oncologists in management of patients with cancer has given rise to the nascent but growing area of Onco-Nephrology. Approximately 60% of patients with cancer have some form of renal involvement including direct malignant effects like myeloma-related kidney injury, infiltration of the renal parenchyma as seen with leukemias and lymphomas, urinary tract obstruction from various cancers, and secondary glomerulopathies. Other indirect effects include effective volume depletion from nausea/vomiting, diarrhea, overdiuresis, malignant ascites or pleural effusions, sepsis, leak syndrome, metabolic disturbances such as hyperuricemia and hypercalcemia. and cardiac involvement, which sensitizes Renal toxicity. Risk factors that must be considered with chemotherapy-associated nephrotoxicity include: unrecognized depressed GFR, higher rates of renal oxidative stress, excessive levels of angiotensin-II/endothelin, and other risk factors which mentioned above. Kidney injury associated with chemotherapeutic agents should be categorized as: Renal vasculature, Glomeruli, Tubulointerstitium, tubulopathies, acute interstitial nephritis, crystal nephropathy,



Scientific and Methodologic Validity and Avoiding Pseudoscience: Ethical Requirements for Research and Clinical Practice in Pediatric Oncology

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Abstract: Scientific validity and adherence to reliable methodologies are among the crucial ethical requirements in the realm of medicine. Scientific and evidence-based medicine is the only acceptable paradigm of medicine to be used in clinical practice and clinical research. This requirement can be justified by the first principle of medical ethics: “do no harm!” Therefore, physicians are ethically obliged to adhere to the standards of evidence-based medicine and inform their patients regarding the difference between science and pseudoscience in the realm of medicine.

Pediatric oncology is of particular relevance to the subject above. Because the promulgators and sellers of medical pseudoscience usually target desperate and frightened people, and nobody is more frightened and desperate than the parents of a cancerous child. Pseudoscience makes false promises and creates groundless hopes, so these parents may abandon necessary treatments and purchase pseudoscientific snake oils hoping to see a miraculous change in their children’s conditions; however, they end up losing their money and the vital opportunities to provide life-saving treatment to their loved ones.

Therefore, the ethical duty of pediatric oncologists in addressing pseudoscience is of exceptional importance. Therefore, they are ethically required to (1) educate themselves, and their patients about the science-pseudoscience problem and how to recognize pseudoscientific claims; (2) encourage their patients to disclose any use of complementary or alternative measures by avoiding from using disparaging rhetoric and showing respect and trustworthiness; (3) adhere to scientific validity both in clinical practice and research.



Supportive Care and Palliative Care Principles in Childhood Cancer

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Pediatric palliative care is an active, total approach, embracing physical, emotional, social and spiritual elements, which focuses on the quality of life for the child and support for the family. It includes the management of symptoms of the illness or treatment complications, the provision of relief and follow through of illness, death and bereavement.

There are differences between caring of adults and children; that is why the definition, approach, and practice of palliative care in children is very different from adults. Since children are not little adults, it is necessary to consider developmental component of care. On the other hand, children are often born with life threatening conditions; may be on palliative care for their entire lives. Because of long-term nature of palliative care in children, the approach must be tailored to children, family and their special needs.

One of the most challenging approach in providing pediatric palliative care is difficulties in making decision about using invasive treatment modalities versus the quality of life of a child. Another aspect of palliative care in children is paying attention to all family members including siblings because providing family centered care is the basic and fundamental philosophy of care in children.

A very important matter in offering palliative care is choosing the suitable setting for providing services. As a rule, where a child as well as her/his family prefer to receive palliative care services, should be considered as the best setting. According to the studies, the best setting for receiving palliative care from the point of view of children and their families is their home.

According to the WHO guideline (2018), Palliative care like the others services which are provided by the health system, should be integrated to the primary health care and provided using regionalization to help increasing access to the services.

Regarding to the importance of pediatric palliative care in all countries as a human right, there are some models of care which have been developed based on Iranian culture.



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Key
Lecture

Implementation of these models can help health care system to provide right care in a right time by right person to children and their families.

Keywords: Palliative Care, Children, Primary Health Care, Symptom Management, Home Care



PALLIATIVE CARE IN TURKEY

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Palliative care is an important approach that improves the control of pain, management of disease- and treatment- related symptoms, and comprehensive psychological, social, and spiritual care of cancer patients. Up to 2010, pain control and symptom relief for patients with cancer were usually provided by medical oncology units, internal disease units and departments of algology (pain) at major hospitals in our country(1).

Legislation of palliative care was initiated in 2008 with 3 workshops in Ankara held to establishing a National Cancer Control Program (Prevention, Early Diagnosis, Diagnosis and Treatment and Palliative Care) based on the recommendations of the World Health Organization. The first palliative cancer model was developed by taking into account the conditions and priorities of our country and published as the Palliative Care Action Plan within the scope of the National Cancer Program 2009-2015 (2).

Currently, in all provinces in Turkey, comprehensive palliative care is provided in public hospitals not only to cancer patients but also to all patients who need palliative care (Figure 1) and covered by health insurance (SGK) (3).

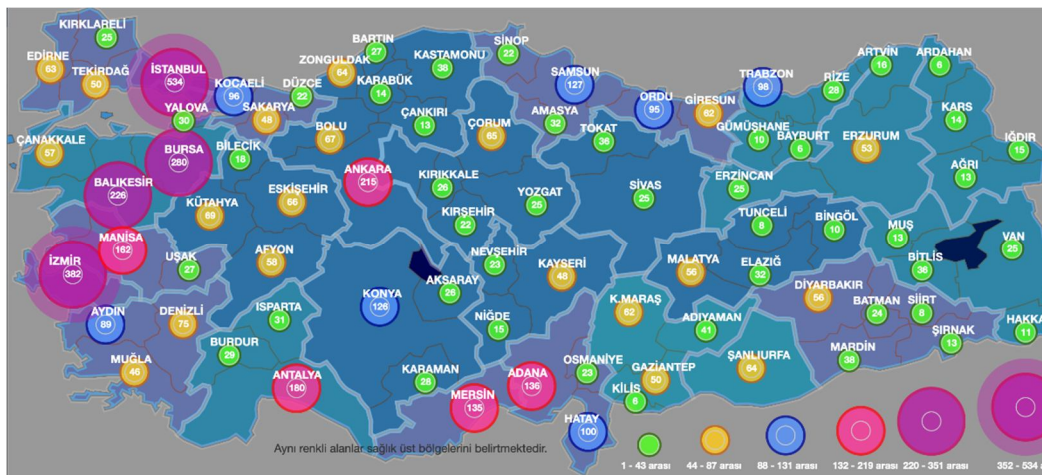


Fig 1. Palliative Care Units in Turkey



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Nurses who work in these centers continue the palliative care of their patients and give training about the patient care to the family members or caregivers who are responsible for the care of the patient. Still there is no curriculum, graduate / postgraduate programs, or national certification programs for nurses on palliative care in Turkey (4, 5). Many nurses gain experience with palliative care from the courses they take during their nursing education and the palliative care education organized by the Ministry of Health and professional cancer congress.(6)

Nurses providing palliative care, especially for those caring for dying patients, face many physical, psychological, social, and spiritual problems themselves (7). Talking about death with patients and relatives can be uncomfortable for them(7, 8), even though they have received education on end of life(7). Caring for these patients may cause the feelings of grief, helplessness, anxiety, and fear (7). Nurses who work on these units are considered as personnel who works in a field that require specialty, and as noted, nurses who work on these units receive an additional payment for their work on the palliative care unit(9).

In 2017, a Middle East Consensus Meeting on “Evidence-Based Palliative Care in Cancer” was organized in Turkey. Many healthcare professionals, involved with the provision of palliative care from 12 countries affiliated with the MECC (Egypt, Iran, Iraq, Israel, Jordan, Kenya, Pakistan, Sudan, Oman, Tanzania, United Arab Emirates, and Uganda), one healthcare professional from Europe (Spain), and 364 healthcare professionals from several provinces of Turkey attended the meeting(10)

During the meeting, palliative care interventions used in the management of symptoms such as pain, dyspnea, nausea and vomiting, diarrhea and constipation, anorexia and cachexia, fatigue, insomnia, distress and delirium were discussed. In tandem, effective approaches and strategies that must be adopted by healthcare professionals and family members for the palliative care of cancer patients were established and published(11).



Comparative study of two doses of filgrastim (5 and 15 Microgram/ kg) on absolute neutrophil count in children with cancer

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Background: indications for the use of GCSFs include primary prevention, secondary prevention, and febrile neutropenia treatment as well as neutropenia treatment to prevent infection. According to GCSF applications, this study was designed on hospitalized patients with fever. Since this drug has a wide range of doses, we decided to evaluate this drug in different doses, because the low dosage of the drug may cause longer infections. In the other hand a higher dosage of the drug might have side effects such as bone pain, platelet loss, constipation, peripheral edema, headache, vomiting, muscle and joint pain, ARDS, cutaneous vasculitis, flushing, fever, erythema, hyperkeratosis, hypoxia, allergic reactions in addition to high costs. Therefore, it is important to obtain effective dose of this drug. This study aimed to compare the effect of two doses of filgrastim in 5 and 15 $\mu\text{g} / \text{kg}$ on neutropenic cancer patients admitted to the Taleghani Hospital.

Material and method: 60 patients were included in this study who had fever, ANC <1500 and one of the following criteria: reduced blood pressure, septicemia, pneumonia, fungal infection. Patients received the drug in a randomized simple controlled trial with a dose of 5 $\mu\text{g} / \text{kg}$ and 15 $\mu\text{g} / \text{kg}$ in two groups A and B. The checklist was completed for patients and then a comparative study was performed on the rate of ANC increase, the days of hospitalization, period of fever, the days of antibiotic use between two groups.

Results : The elevation in the percentage of PMN and ANC in the group treated with a dose of 5 $\mu\text{g} / \text{kg}$ was less than in the group treated with a dose of 15 $\mu\text{g} / \text{kg}$ (17.14 versus 28.09, $0.074 = p$) and (3852.86 versus 4833.31, $p = 0.532$), which was a little significant for PMN percentage. However, the increase in total WBC count at a dose of 5 $\mu\text{g} / \text{kg}$ was higher, which was not statistically significant ($p < 0.05$).

Conclusion: According to this study, it can be concluded that despite the possible better effect of Filgrastims on neutrophil count at a dose of 15 $\mu\text{g} / \text{kg}$ compared to a dose of 5 $\mu\text{g} / \text{kg}$, a significant difference was not observed in the final outcome. However according to different results, more studies are needed with higher sample size and



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attention to higher dose studies, such as 20 μg / kg / day. Also, a study of 2 different doses of drug on a specific malignancy is needed.

Key words: Filgrastim, Cancer, Neutropenia, Oncology



Legal challenges encounter with patients with childhood cancers

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Introduction: medicine today with extreme progresses in technology and huge amount of innovations and high speed of knowledge's expansion in diagnosis, treatment and prevention has changed so deeply that physicians now unlike old days will not be able to continue their carrier without total awareness of new methods and equipments.

This high speed of progress and large number of medical documents force physicians to spend more time to get the new information about their carrier but in other hand unfortunately today it is seen that professors and physicians spend less attention to ethic and professional rules than old days and they are completely ignoring this important point.

According to invasive actions which should be done in treating and diagnosing procedures in childhood cancers an informed consent is definitely needed.

Therefore, discussing patient's consent to necessary medical procedures which is one of the most important legal challenges in medicine is the article's goal.

Method: The results were achieved with the use of valid sources and forensic medicine references and published articles so far.

Result and conclusion:

1. Creating professional side and impetus for knowing the law among all the students and professors
2. Teaching ethic and law in medical science Universities
3. Getting certifications about professional laws should become a must.
4. Paying attention to continues medical education after graduation for all specialties.

Key words: Islamic penal code-medical council-consent



Infectious Complications after Hematopoietic Stem Cell Transplantation

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Abstract

Infections are one of the most common and significant complications after allogeneic and autologous hematopoietic stem cell transplantation (HSCT). The post-HSCT infections are usually divided into the 3 phases (1) pre-engraftment phase (day 0 to day30), (2) early post-engraftment phase (engraftment to day 100) and (3) late post-engraftment phase (after day + 100). In the post-engraftment period, the immune system is reconstituted and recovered in autologous HSCT recipients rapidly. Since the immunological recovery takes at least 3 to 6 months for NK cells, 6 to 12 months for B-cells and CD8 T-cells, and 1 to 2 years for CD4 T-cells and allogeneic HSCT recipients who undergoing long-term immunosuppressive therapy for chronic GVHD remain at risk of infection for long time. The presence of neutropenia, mucositis and central catheter are the leading risk factors in the early pre-engraftment phase. In the early post-engraftment phase, graft versus host disease (GvHD), immunosuppressive drugs especially anti T cell drugs and delayed immune recovery induce increased risk of infections. In the late phase delayed immune recovery ,poor grafts, immunosuppressive drugs are main causes of increased risk of infections .Although the reconstitution of cellular and humoral immunity continues, as well as the pathogens seen during the early post-engraftment phase, viral infections especially varicella-zoster virus ,CMV,adenovirus ,EBV and encapsulated bacterial infections are observed in this phase .A detailed history of infections especially fungal infections, pre transplantation infection evaluation including microbial colonization, antimicrobial prophylaxis for fungal ,viral and bacterial infections and intravenous immunoglobulin administration will decrease the risk of infection during HSCT.previous history of fungal infections , unrelated donor and cord blood transplantations, acute and chronic GvHD and prolonged neutropenia are main risk factors of fungal infections and should be considered .A planned serologic surveillance for fungal and viral infection is mandatory during transplantation period including CMV PCR and aspergilosis galactomannan. Finally after cessation of immunosuppressive treatment all HSCT will receive vaccination.



Infectious Complications of Permanent Central Venous Catheters

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During the past 25 years, enormous progress has been made in diagnosis and treatment of childhood cancer. To improve comfort of treatment, totally implantable venous access systems such as Port-a-Cath have been introduced, enabling frequent blood sampling and long-term chemotherapy (1). The use of central lines or venous access devices in children with malignancies, is associated with an increased risk of infection (2). Catheter related infections are most commonly caused by staphylococci (coagulase-negative and coagulase-positive), viridans streptococcal species, enterococcal spp, and enteric Gram-negative organisms. Candida spp also pose a problem in this patient population, almost always necessitating catheter removal (3, 4).

Catheter-associated bloodstream infection (CABSI) was diagnosed in the presence of the following conditions: (1) at least one of the following signs or symptoms—fever ($>38^{\circ}\text{C}$), chills or hypotension; (2) central venous catheters in use during the 48-h period before development of the infection; and (3) recognized pathogen cultured from one or more peripheral or central venous blood cultures, with the pathogen cultured from the blood unrelated to an infection in another site (such as pneumonia or UTI), at least two positive blood cultures drawn within 48 h (5).

In pediatric cancer patients, candida species remain as the most important cause of invasive fungal disease followed by invasive infections by aspergillus spp. and other moulds (6). The incidence of candidemia has been reported to have shifted toward non albicans species. Candida parapsilosis, has been reported to be associated with central venous catheterization (7).

Catheter removal due to infection was considered in the following situations: hypotensive or critically ill patient; infective organism identified as Candida spp. or Mycobacterium spp.; and persistent bacteraemia or recurrent infection despite adequate medical therapy (5). Also children with cancer who receive parenteral nutrition are still at markedly elevated risk of developing infectious complications (8).



How does cancer pain management in pediatric patients differ from that in adults? Based on WHO guidelines

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WHO introduced the three step-ladder of pain relief in 1986 for adults with cancer and 10 years later in 1996 this three step-ladder has been revised for children in favor of a two-step approach.

In two-step approach the analgesic treatment is recommended according to the child's level of pain severity. Unfortunately unlike adults, there are a limited number of analgesic medicines that can be safely used in children. Acetaminophen and ibuprofen should be considered as first options in mild pain.

Codeine is a prodrug that is converted into its active metabolite morphine is a weak opioid that has been formerly recommended for moderate pain. Differences in the conversion rate and the plasma concentration of the active metabolite make codeine an unreliable medication. Tramadol is also another weak opioid that has not licensed for children.

Morphine is gold standard and the first-line strong opioid for children with moderate to severe cancer pain. Other strong opioid medications are not recommended as first line of treatment.

As emphasized by WHO, analgesic medicines for children with persisting cancer pain should be prescribed "by the clock", "by the mouth" and "by the individual".

Most adjuvant medicines are not recommended in the treatment of persisting cancer pain in children. There are weak recommendation and very low quality of evidence for the use of corticosteroids and bisphosphonates, as adjuvant medicines. Antidepressants, anticonvulsants and ketamine are not also recommended for persisting neuropathic pain in children.



Neurologic complications in Chemotherapy

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Introduction

The survival of patients with cancer have been increased due to earlier diagnoses and significant improvements in treatment protocols. However neurologic complications secondary to chemotherapy are still a significant cause of morbidity in patients and impact an important role in their outcome and quality of life. Although neurotoxicities of chemotherapy are widely known, early recognition and prevention of them may help to avoid permanent neurologic damage. Furthermore, novel therapies such as small molecule tyrosine kinase inhibitors, immunotherapy, CAR T cell therapy, and various monoclonal antibodies have also been associated with neurologic complications. Since neurotoxicity induced by chemotherapy are serious and limited therapeutic measures are available, awareness of common neurologic complications is important to prevent permanent damage. In this Article neurologic complications of chemotherapy, and drugs that commonly occasionally or rarely cause neurotoxicity are introduced. In addition hormonal therapy and role of biological response modifiers are discussed.

One of the most common complications of chemotherapeutic drugs is toxicity to CNS. This toxicity can manifest in several ways, including confusional state and encephalopathy, seizure activity, headache, cerebrovascular complications and stroke, visual loss, cerebellar dysfunction, and spinal cord damage with myelopathy. For many drugs, the toxicity is related to route of administration and cumulative dose, and can vary from brief, transient episodes to more severe, chronic sequelae. However, the neurotoxicity can be idiosyncratic and unpredictable in some cases. Among the antimetabolite drugs, methotrexate, 5-fluorouracil, and cytosine arabinoside are most likely to cause CNS toxicity. Of the alkylating agent chemotherapeutic drugs, the nitrosoureas (e.g., BCNU) and cisplatin most frequently cause toxicity to the CNS, especially when given via the intra-arterial route. Ifosfamide is also likely to cause neurotoxicity at high intravenous doses. Other alkylating agents, such as busulfan, cyclophosphamide, procarbazine, and temozolomide, are better tolerated by the CNS at moderate doses. The retinoid drugs are known to cause severe headaches at



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high doses. L-Asparaginase can induce an encephalopathy, as well as cerebrovascular complications such as stroke.

Peripheral neuropathy is another common side-effect of a number of cytostatic drugs of which vinca-alkaloids, platinum compounds, and taxanes are the most important.

Key Words: Neurological complication, Chemotherapy, Management



Anthracycline Cardiotoxicity

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Anthracyclines, remain an important class of chemotherapeutic agents.

Despite major advances in cancer treatment (ability to cure approximately **70–80 %** children and adolescents with cancer, and in some types of cancer the **survival rates** are as high as **100 %**), anthracycline-related cardiotoxicity remains a major cause of morbidity and mortality in survivors of childhood cancer.

They have cumulative adverse effect on various organs and organ systems.

The basic mechanisms of cardiotoxicity may involve direct pathways for reactive oxygen species generation and topoisomerase 2 as well as other indirect pathways.

The toxic effect of anthracyclines on cardiovascular

System:

Direct loss of cardiomyocytes

Decreased cardiac muscle contractility

Damage to the microvasculature

The most typical clinical manifestations of cardiac muscle damage are as follows:

Asymptomatic ECG abnormalities

Mild blood hypotension

Cardiac arrhythmias

Electrical conduction dysfunction

Myocarditis

Pericarditis

Acute myocardial infarction

Heart failure

Chronic dilated and/or restrictive cardiomyopathy

Classification:

Acute or subacute cardiotoxicity

Early onset chronic cardiotoxicity

Chronic progressive late onset cardiotoxicity

Diagnosis and Monitoring of Cardiac Abnormalities

Standard management during anthracycline-based chemotherapy involves:



Cardiac function assessment prior to treatment

Monitoring potential cardiotoxicity during the therapy as well as a long-term follow-up after the chemotherapy is completed.

In order to evaluate myocardial abnormalities:

Laboratory tests

Genetic tests and

Cardiovascular diagnostic imaging

Such biochemistry markers of necrosis as **T-troponin**, **I-troponin** and **CKMB** are useful in the **acute phase of myocardial injury** and the natriuretic peptide assays (**NT-pro ANP** and **NT-pro BNP**) in detecting of **late anthracycline cardiotoxicity**.

Echocardiography:

the most commonly available and used cardiovascular diagnostic imaging technique.

It facilitates precise evaluation of heart and large vessel morphology as well as diagnosis of systolic and diastolic dysfunction.

Anthracycline Cardiotoxicity Prevention:

Limited cumulative anthracycline dose —it is one of the most commonly accepted heart damage prevention methods.

Therefore, the recommended highest doxorubicin dose should fall within the range of **400–550 mg/m²** and should not exceed **240 mg/m²** in most children and adolescents.

Another subject for a discussion is the route of administration:

continuous infusion can have the **cardioprotective effect** by means of **decreasing the maximum serum drug concentration**.



Thrombosis in Wilm's Tumor

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Introduction: The most common causes of renal mass with malignant venous thrombosis are Wilm's tumor and renal cell carcinoma.

Although renal involvement may occur in other children tumor like disseminated lymphomas, primary renal Burkitt lymphoma (BL) is rare. ⁽¹⁾

Surgery is the most prognostic factor in Wilm's tumor outcome. Wilms' tumours (WT) with retrohepatic vascular extension traditionally requires cardiac bypass for complete excision. We share our experience of these complex cases. IVC involvement was identified in 9% of Wlm's tumor patients. ⁽²⁾ Left-sided tumors were more common (55%). Sensitivity of CT scan in thrombus identification was 64 %.⁽²⁾

METHODS: A retrospective review was performed of three children with WT with retrohepatic vascular extension presenting to Bahrami children's hospitals. Tumour stage, chemotherapy, level of vascular extension, operative details and complication data were analyzed.

Case1: A 7 years old girl who present with an abdominal mass in July 2009. The tumor thrombi was extend from right kidney to renal vein, inferior vena cava, right atrium and present in right ventricle. The kidney biopsy is done on 19th July 2009(1388/05/28). Pathology report was Wilm's tumor Favorable histology. Protocol NWTS-4(D-4A) was began. Total right nephrectomy and thrombectomy was performed on 19th October 2009(1388/07/27) with coupling of Pediatric surgeon and Heart Surgeon. Radiotherapy and chemotherapy continued till 26th September 2010(1389/07/04). At present the patient is free of tumor.

Case2: A 4 years old boy who referred with clot in urine and fever was admitted as UTI. Left renal mass is detected with renal vein thrombosis. Total left nephrectomy and thrombectomy was performed on 7th July 2017(1396/04/16) with coupling of Pediatric surgeon and Vascular Surgeon. Pathology report was Wilm's tumor Rhabdoid type (Unfavorable histology). Protocol NWTS-4(D-4A) was began at the time of nephrectomy. And after the pathology report the ICE and VDC protocol substituted. chemotherapy continued till 7th May 2018 (1397/2/17). At present the patient is free of tumor.



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Case3: A 2.5 years old boy who referred with Left abdominal mass. Total left kidney biopsy was performed on 14th April 2019 (1398/1/25). Pathology report was Wilm's tumor favorable histology. Protocol NWTS-4(D-4A) was began at the time of nephrectomy. High risk Wilm's tumor protocol was began. Total right nephrectomy and thrombectomy was performed on 27th May 20019 (1398/03/06) with coupling of Pediatric surgeon and vascular Surgeon. At present, the patient condition is good and the treatment will be continued.

Discussion and CONCLUSION: Surgery is the most prognostic factor in Wilm's tumor outcome. Wilms' tumours (WT) with retrohepatic vascular extension traditionally requires cardiac bypass for complete excision. We share our experience of these complex cases. IVC involvement was identified in 9% of Wlm's tumor patients. ⁽²⁾ Left-sided tumors were more common (55%). Sensitivity of CT scan in thrombus identification was 64%. ⁽²⁾ Retrohepatic extension of WT can be managed without bypass using pre-operative chemotherapy and by complete liver mobilisation. The tumour was always adherent to IVC and required sharp dissection.



Hepatic Toxicity in pediatric cancer

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بیماران مبتلا به بدخیمی به دلایل مختلفی دچار اختلال تستهای کبدی می شوند: ۱. مسمومیت با داروهای درمان بدخیمی ۲. درگیری ناشی از رادیاسیون ۳. مسمومیت ناشی از درمانهای حمایتی ۴. درگیری ناشی از تغذیه وریدی ۵. تهاجم کبدی ۶. هپاتیت‌های ویروسی ۷. بیماری کبدی قارچی ۸. سپتی سمی ۹. بودکیاری ۱۰. GVHD ۱۱. سندرم پارائوپلاستیک ۱۲. همولیز ۱۳. درگیری ناشی از پرخونی ۱۴. بیماری غیر مرتبط با بدخیمی.

علائم بالینی شامل: بی علامتی، تهوع، بی اشتها، خستگی، درد RUQ و خارش که تقریباً همگی غیراختصاصی هستند. تشخیص موارد مختلف از یکدیگر مشکل است. عمدتاً چند علت با هم در اختلال کبدی نقش دارند. بررسی ویروسها، سونوگرافی برای تشخیص تهاجم کبدی، بررسی قارچها، کشت میکروبیال. بیوپسی کبد برای تشخیص در موارد محدودی توصیه می شود نظیر افتراق انسداد سینوزوئید کبدی از GVHD. بیوپسی برای تعیین پیش آگهی نقش موثرتری دارد تا تشخیص. تشخیص سایر بیماریها مثل هپاتیت اتوایمون، هپاتیت الکلی، NASH، هایپوکسی و ایسکمی، ویلسون، هموکروماتوزیس، کمبود آلفا یک آنتی تریپسین هم با راههای تشخیصی اختصاصی میسر است.

Drug Induced Liver Injury DILI

صدمه کبدی ناشی از دارو در کودکان چاق و سن بالای کودکی بیشتر رخ می دهد. عوامل مهم در تشخیص شامل زمان شروع درگیری Latency، پاسخ به قطع دارو Dechallenge و شروع مجدد دارو Rechallenge. در صورتیکه عوارض وابسته به دوز باشد شروع دارو با دوز کمتر توصیه می شود. در موارد غیر وابسته به دوز که صدمات شدید کبدی ایجاد می کنند شروع مجدد می تواند خطرناک باشد.

مانیتورینگ دقیق عملکرد کبدی شامل آنزیم های هپاتوسیتی و مجاری، بلیروبین، اما مهمترین معیار صدمه کبدی بالینی است نه فقط آزمایشگاهی، طبق تقسیم بندی شبکه DILI شدت درگیری را با هیچ تستی به تنهایی نمیتوان مشخص کرد به همین دلیل با امتیازدهی به عوامل مختلف میزان آسیب پیش بینی می شود.

DILI دستورالعمل شبکه

تقسیم بندی شدت درگیری

۱. خفیف: فقط افزایش در ALT یا ALP ۲. متوسط همراه با افزایش بلیروبین و اختلال انعقادی ۳. شدید نیاز به بستری و اختلال کارایی ۴. نارسایی حاد کبدی با اختلال در ارگانهای مرتبط دیگر (انسفالوپاتی و نارسایی کلیوی) ۵. مرگ یا پیوند.

تقریباً در اکثر موارد قطع دارو تنها درمان موثر است در صورتیکه درمان جایگزین وجود نداشته باشد شروع مجدد با دوز کمتر توصیه می شود. درمان مشخصی برای موارد ایدیوسینکرازی وجود ندارد اگرچه در بالغین ان استیل سیستئین مورد استفاده قرار میگیرد. اسیدهای چرب امگا ۳ مانع هپاتوتوکسیسیتی متوترکسات می شود. تجویز گلوکوکورتیکوئیدها در درمان ثابت نشده است بجز در Hypersensitivity reaction که کلستاز پیشرونده یا علائم خارج کبدی نظیر درگیری ریوی یا همراهی اتوزینوفیلی دارند.



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در موارد کلستاتیک و همراهی خارش تجزی کننده های اسیدهای صفراوی کمک کننده است.
در موارد مقاوم به درمان یا احتمال نارسایی کبدی شروع اقدامات پیوند الزامی می شود.



Investigational Medicinal Products (IMP)

Nucleic Acids, Genes, Cells and Peptides for Immune Gene Therapy of leukaemia, solid tumours and in regenerative medicine

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The last 5 years has witnessed major developments in a range of new therapies with a focus on the improvements for the treatment of cancer. These developments have already culminated in the overall long-term survival from cancer to greater than 50% of the patients. This is substantially due to the better understanding of the underlying molecular basis of the different forms of cancer and the development of: a. substantially more effective forms of immune therapies (ranging from monoclonal antibodies, immune checkpoint inhibitors, etc.), b. development of stratified and precision medicine-based optimisation of therapy.

The immune system is an incredibly powerful network of cells, signalling molecules and effector/suppressor pathways, which can be exploited by cancer to aid progression of the disease. Targeting these interactions to allow the immune system to effectively attack the tumour represents a line of treatment called Immunotherapy.

The delivery of therapies based on cell, gene and immune therapy require the availability of highly specialised centres (e.g. Clean Rooms, GMP facilities), specialist equipment, assays and appropriately trained personnel. The cell and gene therapybased treatments cannot be provided through conventional facilities.

In our centre we have established a Licenced GMP facilities for the production of Cell & Gene based Investigational Medicinal Products, we have developed different approaches for treatment of Leukaemia and solid tumours such as: Cancer Vaccination – gene modified cells, CAR T Cell therapies (autologous and allogeneic). We also developed autologous leukaemia cell vaccines for immune gene therapy of AML mediated by CD80 & cytokines. We are in the process of clinical trials for New phase-I hTERT vaccination that is the first step in the clinical application of therapeutic CASAC (Combined Adjuvant for Synergistic Activation of Cellular immunity) cancer vaccines.

Another programme in our centre is focused on miRNAs, trying to modify tumour behaviour and use them as a tool for cancer treatment. miRNAs that are rapid, large scale specific gene regulators may function as either oncogenes or tumour suppressors under



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certain conditions and can affect the hallmarks of cancer (resisting cell death, activating invasion and metastasis). We are trying to identify miRNAs as potential biomarkers for human cancer diagnosis, prognosis and therapeutic targets or tools.

In this talk we represent a short report of these potential novel treatment strategies for human cancers based on the use of nucleic Acids, Genes, Cells and Peptides.



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Determining the Susceptibility Pattern of Different Candida Species, Isolated from Hospitalized Immunocompromised Patients in Urmia Hospitals, to Antifungal Drugs

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Resistance to fungal infections is increasing throughout the world, and this is especially important in immunocompromised patients. Infection with candida fungi species is one of the most important causes of fungal infections in these patients, able to cause complications and mortality. The purpose of this study was to determine the susceptibility of isolated candida species to systemic antifungal drugs in immunocompromised patients in Urmia. Two hundred patients with immune deficiencies were examined for Candida fungi infection in Urmia hospitals. After isolation of Candida species causing the infection, their susceptibility to amphotericin B, fluconazole, itraconazole, voriconazole, posaconazole and ketoconazole was investigated. Data were analyzed using SPSS21. Chi-square, Fisher's exact and Monte Carlo tests were used to compare the data. Out of the 200 patients with immune deficiencies, 45 (23%) of the patients showed infections due to Candida fungi species. The isolated species were albicans (68.9%), glabrata (13.3%), tropicalis, parapsilosis, krusei and kefyr (each 4.4%). Overall susceptibility to amphotericin B was 77.8%, fluconazole 55.6%, itraconazole 46.7%, voriconazole 91.1%, posaconazole 77.8%, and ketoconazole 40%. According to the results, Voriconazole is the best medicine for preventing or treating candidal infections in patients with immune deficiencies.



Family-Centered Empowerment Program Design for the Care of Children with Acute lymphoblastic leukemia: A Descriptive Exploratory Study

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Introduction: Acute lymphoblastic leukemia is the most common type of childhood cancer that is common among children aged 2-5 years and in boys more than girls. In recent decades, due to advances in technology and treatment, mortality rates have sharply decreased in children with leukemia and increased life expectancy and cure for more than 75%. Despite progress in the treatment of leukemia, it is the second leading cause of death in children under the age of 15 following accidents in the world and in Iran. It affects not only the affected child, but also all family members, and creates severe changes in the various dimensions of family life. The care of affected children of this age is entirely dependent on the family, and with the advancement in treatment and increased life expectancy, the relocation of care from the hospital and the health care system to home and family care, changes in the various dimensions of family life, and the participation of members The family increases as a family caregiver. Evidence suggests the diversity of family carers' needs in patient care, which are different in different cultural, economic and social contexts. Therefore, identifying these needs is an important



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step in planning and designing a family-centered empowerment program to provide quality care and increase quality of life, self-efficacy, self-esteem, stress, anxiety and depression. Since the empowerment of families in the care of children with acute lymphoblastic leukemia is based on the culture and context of each society, and due to the lack of such tools in Iranian society, this study aimed to design a family empowerment program for children with acute lymphoblastic leukemia.

Materials and Methods: This is a descriptive-exploratory hybrid study in two areas including the need to empower families of children with acute lymphoblastic leukemia, program design (in three stages of systematic review, using the Delphi technique, and finally holding a panel of experts).) Done. In order to identify and identify family empowerment needs, 63 individual semi-structured interviews (40 interviews with family members and 23 interviews with treatment team members) and four group interviews (2 family interviews and 2 team interviews with team members) Treatment), interviews were used. Data analysis was performed with the help of the conventional content analysis approach (conventional cost method). In the second stage, using the Delphi technique and the panel of experts was designed for the family-centered empowerment of family-centered families of children with acute lymphoblastic leukemia under the age of 15 years using literature review and resources and documentation.

Results: In the analysis of qualitative data, 61 sub floors, 17 sub floors and 5 main categories: "Adaptation to disease", "Management of physical, psychological and social consequences of disease", "Rebuilding relationships and interactions", "Spiritual empowerment in Adaptation to the situation "and" the necessity of comprehensive support for family empowerment ". Participants in the Delphi technique prioritized the needs for the empowerment of families of children with leukemia according to the five criteria of significance, impact, degree of variability, satisfiability, and access to resources. The empowerment needs were ranked based on the score, including family empowerment in managing physical illnesses and psychological illnesses (22), family empowerment in effective exposure to illness (21.35), family empowerment in the reconstruction of interactions (individual-family and social) (20.05), creation of comprehensive support for family empowerment (19.8), and creation of comprehensive support in mighty Family (19.55). The Panel of Experts emphasizes the need for a family-centered consensus on family empowerment in managing the physical, psychological, emotional and social complications of a disease that has received the highest priority in the Delphi technique as the most important family needs, and the design of the program in five steps includes the first step of cognition



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The needs of the families of children with leukemia, the second step of setting goals (empowering the family in providing care), the third step of content design, the strategy and empowerment method, the fourth step of implementing the family-centered empowerment program, and the fifth step of the evaluation.

Conclusion: Considering that this program was based on the needs of the family and with the help of extensive overview of the Delphi and Delphi techniques and the panel of experts and in the context of Iran's cultural and social context, it seems that using the program can be used to empower the family Children with cancer are advised and used throughout the country, and may be able to become feature-rich in the implementation of the program.

Keywords: Acute lymphoblastic leukemia, family, children, empowerment, family needs, family-centered care



A Case Report of Pneumothorax and Acute Kidney Injury in the Early Phase of Acute Lymphoblastic Leukemia (ALL) Induction Therapy Due to Aspergillus Fumigatus and Pneumocystis Jirovecii Co-Infection

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Leukemia is the most common malignancy in children, which leads to immunosuppression in these patients and predispose patients to opportunistic infections. Co-infection of pneumocystis jirovecii and aspergillus fumigatus in these patients, although rare, is reported in some literatures, and need to high level of suspension and definite microbiologic studies. In the present case, a 12 years adolescent girl with newly diagnosis of ALL, receiving induction phase of chemotherapy, will be introduced, who developed severe respiratory distress followed by pulmonary cavity formation and acute renal failure due to bilateral renal stone. After microbiologic examinations, co-infection of pneumocystis jirovecii and aspergillus fumigatus was confirmed in her lung. The patients treated with trimethoprim- ulfamethoxasole in addition of intravenous liposomal Amphotrecin B, in addition to hemodialysis and renal stone removal. Her signs and symptoms regressed well at the end of second week of therapy.



Comparative Study of Two Doses of Filgrastim (5 and 15 Microgram/ kg) on Absolute Neutrophil Count in Children with Cancer

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Background: indications for the use of GCSFs include primary prevention, secondary prevention, and febrile neutropenia treatment as well as neutropenia treatment to prevent infection. According to GCSF applications, this study was designed on hospitalized patients with fever. Since this drug has a wide range of doses, we decided to evaluate this drug in different doses, because the low dosage of the drug may cause longer infections. In the other hand a higher dosage of the drug might have side effects such as bone pain, platelet loss, constipation, peripheral edema, headache, vomiting, muscle and joint pain, ARDS, cutaneous vasculitis, flushing, fever, erythema, hyperkeratosis, hypoxia, allergic reactions in addition to high costs. Therefore, it is important to obtain effective dose of this drug. This study aimed to compare the effect of two doses of filgrastim in 5 and 15 $\mu\text{g} / \text{kg}$ on neutropenic cancer patients admitted to the Taleghani Hospital.

Material and method: 60 patients were included in this study who had fever, ANC < 1500 and one of the following criteria: reduced blood pressure, septicemia, pneumonia, fungal infection. Patients received the drug in a randomized simple controlled trial with a dose of 5 $\mu\text{g} / \text{kg}$ and 15 $\mu\text{g} / \text{kg}$ in two groups A and B. The checklist was completed for patients and then a comparative study was performed on the rate of ANC increase, the days of hospitalization, period of fever, the days of antibiotic use between two groups.

Results: The elevation in the percentage of PMN and ANC in the group treated with a dose of 5 $\mu\text{g} / \text{kg}$ was less than in the group treated with a dose of 15 $\mu\text{g} / \text{kg}$ (17.14 versus 28.09, $0.074 = p$) and (3852.86 versus 4833.31, $p = 0.532$), which was a little significant for PMN percentage. However, the increase in total WBC count at a dose of 5 $\mu\text{g} / \text{kg}$ was higher, which was not statistically significant ($p < 0.05$).

Conclusion: According to this study, it can be concluded that despite the possible better effect of Filgrastims on neutrophil count at a dose of 15 $\mu\text{g} / \text{kg}$ compared to a dose of 5 $\mu\text{g} / \text{kg}$, a significant difference was not observed in the final outcome. However



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according to different results, more studies are needed with higher sample size and attention to higher dose studies, such as 20 μg / kg / day. Also, a study of 2 different doses of drug on a specific malignancy is needed.

Keywords: Filgrastim, Cancer, Neutropenia, Oncology



Effect of Aprepitant on Chemotherapy-Induced Nausea and Vomiting in Children with Malignancy

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Introduction: Nausea is the most common complication of chemotherapy which may also be accompanied by vomiting. Aprepitant has been used to prevent chemotherapy-induced and post-surgery nausea and vomiting. Regarding the limited number of studies addressing the effect of aprepitant on chemotherapy-induced nausea and vomiting (CINV), the present study is aimed to determine the effect of aprepitant on reducing the severity and frequency of nausea and vomiting in acute and delayed phases of chemotherapy.

Method: This triple-blind clinical trial was conducted on 60 patient who received chemotherapy. Each patient received a single dose of 40 µg/kg of granisetron along with placebo, 1 hour prior to chemotherapy. The patients received the same medication in the second and third days. Then, the same patient, in another chemotherapy course with the same protocol, received aprepitant in addition to granisetron. The dose of aprepitant was as follows :125 mg for the age range of 12-18, 3 mg/kg (up to 125 mg) for 5-12 in the first days; 2 mg/kg (up to 80 mg) in the second and third days.

Results: The mean age of patients was 9.3 ± 3 years; 18 patients (30%) were male while 42 (70%) of them were female. Nausea and vomiting were higher in the control group all the time; these differences were statistically significant.

Discussion and conclusion: Based on the results, aprepitant could be administrated along with other antiemetic drugs as a useful treatment to prevent and treat the chemotherapy-induced nausea and vomiting which may enhance the treatment condition of patients and improve their recovery.



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Keywords: Aprepitant, CINV, chemotherapy, Children



Comparison of the Effects of Pegylated Granulocyte-Colony Stimulating Factor and Granulocyte-Colony Stimulating Factor on Cytopenia Induced by Chemotherapy in Children with Solid Tumors

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Introduction: Prophylaxis of chemotherapy-induced neutropenia by granulocyte stimulating factor (GCSF) has a significant effect on reducing the complications of chemotherapy. The aim of this study is to compare the effect of Filgrastim and Pegfilgrastim in preventing chemotherapy induced neutropenia in children with solid tumors.

Materials and Methods: A randomized clinical trial was carried out on children who were admitted to the oncology ward of Amirkabir Hospital in Arak. Patients were randomly divided into 3 groups; each comprising 30 people. A 10 µg/kg/day dose of Filgrastim and a 100 µg/kg dose of Pegfilgrastim were injected subcutaneously after 24 hours following chemotherapy. Group A was treated with a daily dose of Filgrastim in the first cycle and Pegfilgrastim in the succeeding, separated by a washout period of at least 30 days. In contrast, group B was treated with a single dose of Pegfilgrastim in the first cycle and Filgrastim afterwards. Group C did not receive any medication. Cell blood counts were recorded in the beginning and also in the 3rd, 7th and 14th days of treatment. The side effects and the duration of neutropenia and hospitalization due to adverse drug reactions as well as the delay in starting the next cycle of chemotherapy, chemotherapy dose reductions due to neutropenia and treatment costs were all recorded.

Results: The mean age in group A was 6.47 years, 6.07 in group B and 6.27 in group C; the distribution of the sexes was homogeneous in these groups. Mean ANC was the same in all three groups before chemotherapy. After receiving the final dose of



chemotherapy, mean ANC was not significantly different in the studied groups ($p = 0.217$).

On the first day, mean ANC in group A was 2036 higher than the other two and the highest neutropenia was seen in group C but the difference between mean ANC of these groups was not remarkable ($p = 0.217$).

On the third day, mean ANC in group C was 1360.0 and it was significantly lower than the mean in groups A and B. Groups A and B had the same mean, and the difference between the mean of the three groups was significant ($p = 0.006$). 11 cases of group C were mildly to moderately neutropenic.

On the 7th day, mean ANC in groups A and B was significantly increased and in group C was decreased to 253.6. There was a significant difference between the three groups ($p = 0.000$).

On the 14th day, mean ANC for each of the three groups decreased, but neutropenia in groups A and B was much lower than that of group C. In group C, there was one person with severe neutropenia. A remarkable difference was observed in fever rates; the highest was associated with group C (70%) and the other two were a 25% rate in group A and a 20% in group B ($p = 0.000$). The neutropenic hospitalization rate was significantly different between these groups with the highest observed in group C (63.3%) compared to the rate in groups A and B which were 25 and 20 per cent, respectively ($p = 0.000$). 20% of cases in group C and 16.7% in group B were treated due to delayed neutropenia and this difference was significant ($p = 0.026$).

The highest cost was in group C and costs in groups A and B were almost the same. There was no significant difference between the costs of the three groups (0.064).

Conclusions: Based on the results of this study, GCSF is effective in preventing neutropenia and reducing complications of chemotherapy. In this study, the efficacy and reducing effect of chemotherapy complications of Pegfilgrastim were significantly more than filgrastim.

Keywords: pegfilgrastim, chemotherapy, solid tumor, children



Ginger Relieve Chemotherapy Induced Nausea and Vomiting (CINV) in Children: A Randomized Clinical Trial

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Introduction: One of the major adverse effect of chemotherapy is chemotherapy induced nausea and vomiting (CINV) which can obviously reduce patients' quality of life and patients acknowledge it as one of the major adverse impacts of chemotherapy. In spite of using combination of antiemetic agents, nausea remains as a prominent problem for patients. Ginger, an herbal supplement, has been used for centuries for gastrointestinal complaints. Although many surveys have been conducted to find the efficiency of ginger on CINV, its benefit hasn't been proven yet. The aim of this present study was to find ginger's efficiency on pediatric patients throughout their chemotherapy cycles.

Patients and methods: This was a double-blinded, randomized, single institutional, placebo-controlled trial conducted at oncology ward in Ali-Asghar children hospital. We included 49 chemotherapy cycles, 25 cycles for treatment group and 24 cycles for placebo groups. Intervention group took encapsulated ginger which contained 240mg powder of ginger (Nausophar); and control group took placebo. The ginger and placebo capsules were manufactured by Know.Tech.Pharm Corporation. Frequency and severity of nausea and vomiting were measured by Edmonton's Symptom Assessment Scale (ESAS) from the first day of chemotherapy until 24h after completion of chemotherapy.



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Results: There were no significant differences in distribution of patients' characteristic in two groups. The frequency and severity of nausea and vomiting were significantly lower in ginger group.

Conclusion: According to our findings, ginger can be used as an efficient antiemetic for pediatric patients. It can be prescribed as well as other antiemetics like Granisetron.

Keywords: ginger, chemotherapy, nausea, vomiting, pediatric, cancer



Effect of Chamomile (*Matricaria chamomilla* L.) on Chemotherapy-Induced Neutropenia in Pediatric Leukemia Patients: a Randomized Triple-Blind Placebo-Controlled Clinical Trial

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Background: Acute lymphoblastic leukemia (ALL) is the most common malignancy of childhood. Chemotherapy-induced neutropenia as serious hematologic toxicity is one of the main treatment complications in these patients. We hypothesized that an herbal formulation of chamomile could be effective in the management of neutropenia.

Methods: A randomized triple-blind placebo-controlled clinical trial was conducted with the inclusion criteria of 2-18 years old children, diagnosis of ALL (B-cell subtype), and admission in the hospital. Those with sensitivity to chamomile were excluded. Participants in each group received 2.5 ml of either chamomile syrup or placebo syrup once daily for 30 days. Their white blood cell (WBC) count and absolute neutrophil count (ANC) as the primary outcome measures and their quality of life were evaluated.

Results: A total number of 20 patients in each group (40 in total) completed the study. A meaningful increase of ANC was seen in the drug group ($P = 0.001$) despite a decreasing trend in the placebo group ($P = 0.019$). This group had also a higher increasing rate of WBC although it was not statistically significant. No serious adverse event was reported.

Conclusion: Using chamomile syrup as a complementary treatment in pediatric leukemia patients can improve their immunity and minimize their chemotherapy complications, especially neutropenia.

Keywords: *Matricaria chamomilla*; Leukemia; Chemotherapy; Neutropenia; Quality of Life



Evaluation of Wound Healing Effect of Topical Abookhalsa Ointment Pediatric Oncology

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Introduction: Abukhalsa is an Arabic plant with properties of anti-inflammation, anti-fungal antimicrobial and accelerates healing of diabetic wound. This plant including naphthynonics such as alkanin and chiconin, and phenolic (flavonoids). The antioxidant and wax in this compound has synergic effects.

In this study, the wound-healing efficacy of Abookhalsa and phenytoin were compared.

Materials and Methods: 20 patients in pediatric oncology ward were contributed in this randomized trial study. Two groups include Control group (A, n=20) and treatment group (B, n=20) were treated for macerating wounds on the limbs or diaper area. The control group received Vaseline and patient group received Abookhalsa topical ointment till the 16th day of the study. The areas of wounds were measured on the Days 4, 8, 12, and 16 of the experiment. The percentages of the healing wounds were calculated by Walker formula after measurement of the wound area. Also, complete epithelization of wounds was noted in each group.

Results: Statistically significant reduction ($P < 0.05$) in average wound area was seen in Group B (P value=0.0017, 0.0001, 0.0001, 0.0001), respectively, on Days 4, 8, 12, and 16 of the experiment in comparison to Group A. The average number of days required for complete epithelization of wound area was less in Group B as compared to Group A ($P=0.0120$). The difference was statically significant.

Conclusion: Topical Abookhalsa accelerated healing of maseratin wound in oncologic patients.

Keywords: Vaseline cold cream, area of wound healing, oncology, Abookhalsa



Complementary Therapy with *Viola odorata* L. Oil for Fever Control in Febrile Neutropenic Children during Hospital Course: A Randomized Double-Blinded Placebo-Controlled Clinical Trial

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Introduction: Finding non-systemic antipyretic option in cancer patients who simultaneously receive several other drugs seems to be logical. This study was designed to evaluate complementary therapy with *Viola odorata* L. oil for fever control in febrile neutropenic children.

Methods and materials: In a randomized placebo controlled clinical trial, 41 febrile children were divided into two groups. Children in the active drug group received viola oil (20 drops) to be rubbed on the peripheral margin of the patient umbilicus. Primary outcome measure of the study was the mean axillary temperature in the 30, 60, and 240 minutes after the intervention.

Results: The mean temperature reduced significantly in the viola group after 30 minutes of administration ($p = 0.005$), while there was no significant change in the placebo group ($p = 1.00$). The number of patients who received paracetamol as the rescue treatment was significantly lower in the viola group than that in the placebo group (5 vs. 17, $p = 0.001$).

Conclusion: The results of our study showed the safety and efficacy of complementary therapy with *Viola odorata* L. oil for fever control in febrile neutropenic children during hospital course.

Abbreviations: PM, Persian Medicine; GC-FID, Gas chromatography-flame ionization detection; IRCT, Iranian Registry of Clinical Trials; ANOVA, Analysis of variance

Keywords: *Viola odorata* L.; Sweet violet; Traditional Medicine, Skin absorption; Antipyretic effect; Neutropenic fever



Comparison of Intelligence Quotient in Survivors of leukemia Who Were Treated with Different Central Nervous System Prophylactic Regimens

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Background: Survivors of Childhood leukemia are always at risk of CNS morbidity and Intelligent Quotient (IQ) deficit regardless of the mode of CNS-directed therapy.

Materials and Methods: In this study we compared IQ of 21 long-term survivors of acute lymphoblastic leukemia (ALL), who were treated with intrathecal methotrexate (IT MTX) as CNS prophylaxis (group 1) with 22 survivors treated with IT MTX+1800-2400 cGy cranial irradiation (group 2) and 20 healthy controls (group 3). Raven's test was used for IQ measuring (with SD=16, IQ<76 is very low, 70-90 is low, 90-110 is normal and 110-130 is high).

Results: Raven's test revealed significant differences in IQ between the survivors of ALL who were treated with IT MTX, IT MTX plus cranial irradiation and control group (Mean± SD: 101± 3.8, 94.8± 14, 105± 9.4 respectively; $P=0.03$). There was no significant difference between the IQ of ALL survivors who were received IT MTX alone (group 1) in comparing with the two other groups ($P=0.11$ and $P=0.26$, respectively) but the IQ of survivors of group 2 (IT MTX+ cranial irradiation) was lower than the control group ($P=0.01$).

There was no significant difference in the IQ with respect to sex, age and irradiation dose.

Conclusion: Based on the finding of this study combined CNS prophylaxis treatment (IT MTX+ cranial irradiation) is associated with IQ score decline in ALL survivors. Therefore, attention to the basic intelligence and educational progress of these children in comparing with normal children at the school is necessary.

Keywords: Leukemia, Intelligence quotient, irradiation

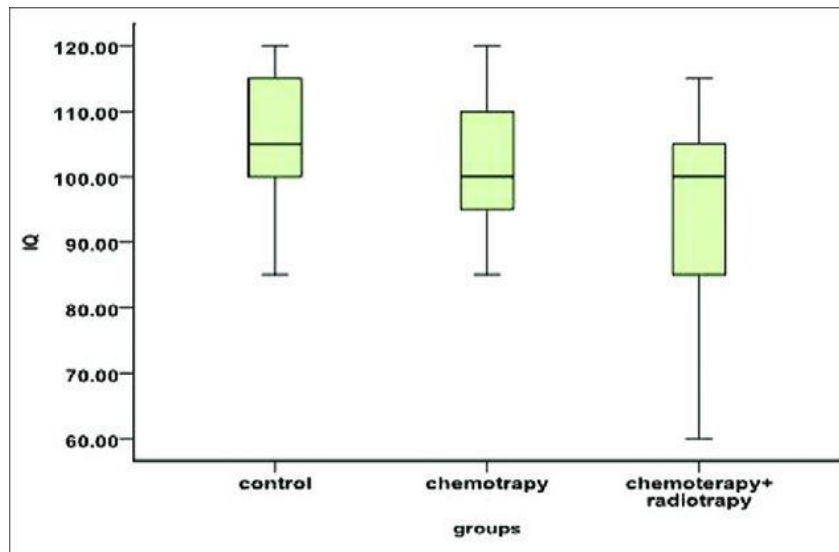


Figure1. Comparison of the intelligence quotient in three groups



Vitamin D Status in Newly Diagnosed and Relapse Children with Malignancies

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Background: Vitamin D (Vit-D) deficiency may increase the risk of cancer and its relapse. This study compared serum Vit-D levels of newly diagnosed children with cancer and its relapse with healthy normal control.

Methods: This cross-sectional study was performed on three groups of children including: group A (50 patients with newly diagnosed malignancy), group B (40 patients with relapse of malignancies) and group C (40 healthy normal children as control group). Vitamin D levels were measured using HPLC method. Chi-square test and logistic regression was employed to analyze the data.

Results: The results showed that Vit-D abnormalities (Vit-D level < 30 ng/ml) in newly diagnosed children with malignancy (group A) had no significant difference with healthy controls ($P=0.195$), but in subjects with relapse of malignancy Vit-D abnormalities were statistically significant higher than the control group ($P=0.001$). Vit-D abnormalities in children under 6 years old was significantly less than that of patient over 6 years old ($P=0.033$) but there was not enough evidence to suggest type of malignancy and gender were associated with Vit-D abnormalities ($P=0.511$, $P=0.603$).

Conclusions: Based on the finding of this study it seems Vit-D abnormalities are more in patients with relapse of malignancy, so treat it in patients with cancer is very important.

Keywords: Malignancy, Vitamin D, Recurrence



Supportive Care Interventions in Taste and Smell Alterations in Childhood Cancer and Hematopoietic Stem Cell Transplantation: A narrative Review

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Background and aim: Improvement in survival for children with cancer has been attributable to the provision of intensive therapies. However, as a result, most children suffer and experience severe and distressing treatment-related symptoms such as taste and smell alterations that can hamper quality of life of these patients by influencing their appetite, body weight and psychological well-being. Since children have more nutritional requirements for growth and development, they are more vulnerable to malnutrition. Purpose of this paper is to review recent supportive care interventions dealing with taste and smell alterations in childhood cancer and hematopoietic stem cell transplantation.

Material and methods: The research was conducted by searching PubMed, Scopus, Cochrane, CINAHL, with no restrictions related to the kind of publication, in a time span that includes the last 5 years and 20 studies were included.

Results: According to recent interventional studies, various treatment modalities have been used to improve taste disorders. These include the use of zinc, transcranial magnetic stimulation, alpha lipoic acid, ginkgo biloba and pilocarpine. The ability to manage taste disorders varied with each intervention. Other than these interventional studies, many individual case reports on management of taste disorders like high dose biotin, application of glutamate, branched-chain amino acid-enriched supplementation (Aminofeel), and transient cooling of the mouth by using ice cubes, are found in the literature.

Conclusion: Based on analyzed studies; in order to prevent the risk of anorexia related to taste and smell alterations, treatment should include relevant information to the subject for anticipating objective taste modifications and a psychological follow-up during the actual change of taste quality perceptions in everyday life.

Keywords: Cancer, Care, Smell, Taste, Transplantation



The effect of mucoadhesive gel containing *satureja hortensis* extract of 1% on severity of chemotherapy-induced mucositis pain in children: A double-blind clinical trial study

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Background and objective: Mucositis is one of the common complications of chemotherapy, and one of its symptoms is severe pain. The mucositis management is initiated by assessment of oral hygiene, as well as by changes of diet and management of pain. Many uses have been mentioned for *satureja hortensis* in traditional medicine. Therefore, the present study was carried out with the aim of determining the effect of *satureja hortensis* extract mucoadhesive gel of 1% on severity of mucositis-induced pain in children under chemotherapy.

Materials and Method: This double-blind clinical trial study was carried out on 60 children who were affected by mucositis following chemotherapy in 2016. The samples were randomly assigned into two groups of intervention and control. The intervention group applied *satureja hortensis* extract gel of 1% and the control group applied the placebo gel twice daily for 5 days after the onset of mucositis along with routine treatment. Oral mucosa was evaluated daily. Also, the Oucher pain tools and a



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demographic questionnaire were used. The data was analysed using Chi-square test, t-test and analysis of variance (ANOVA) for repeated measures were used.

Findings: The obtained data showed that the two groups had statistical difference in terms of the severity of the pain relief during the time ($p < 0.0001$). Accordingly, the extract of *Satureja hortensis* was observed to significantly reduce the severity of oral ulcer-induced pain and accelerate the healing.

Conclusion: The present study showed that the extract of *Satureja hortensis* is effective in healing oral ulcer-induced pain and can be used as a new treatment method in relieving (reducing) mucositis pain.

Keywords: *Satureja hortensis*, mucositis, children, chemotherapy, pain



Effect of Resilience-Based Group Therapy Intervention on Coping in Mothers of Children with Cancer

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Background: Cancer is the second most common cause of mortality after cardiovascular disease. Resiliency is one of the best strategies for coping with diseases in patients. This study was aimed to determine the effect of resilience-based group therapy intervention on coping in mothers having child with cancer

Materials and mmethods: This study was a randomized clinical trial carried out on mother having child with cancer in ShahidMotahhari hospital of Urmia in 2017 and 48 mothers were selected using convenience sampling. Samples were randomly divided into two groups using Excel (RANDBETWEEN function) and were participated in resilience-based group therapy session. The data were collected using a demographic questionnaire, General Health Questionnaire (GHQ-28) and Coping Health Inventory for Parents (CHIP). All data entered into SPSS version 21 software and as frequency (percentage) and mean (SD) were reported. ANOVA (Analysis of variance) test was used to compare two groups in three times. Less than 0.05 was considered as the level of significance.

Results: In this study, the mean scores of the integration in the intervention group over time was significantly different compared to the control group ($p < 0.05$), so that the mean and standard deviation of the integration score was 40.8 (2.54) and in the control group was 18.04 (3.05). Also, the mean score of social support and health status perception in the intervention group over time was significantly different compared to the control group ($p < 0.05$), so that the mean and standard deviation of social support and health status perception scores was 39.88 (2.81) and 22.72 (5.91) and in the control group was 16.87 (4.19) and 10.95 (2.01), respectively.

Conclusions: This study showed that resilience-based group therapy intervention can be helpful as an effective support for mothers with cancerous child in coping with their child's disease.

Keywords: Neoplasms, Resilience, Child, Therapy, Adaptation



Childhood Malignancy and Cardiotoxicity of Anthracyclines

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Background: Anthracyclines are antitumor agents with broad spectrum activity against many childhood malignancies. An important side effect of these drugs is cardiotoxicity which may happen even years after discontinuation. Our objective was tried to determine the incidence of Anthracycline induced chronic cardiotoxicity and its risk factors in an Iranian cohort.

Methods: we carried out a prospective analytic descriptive study at Children's Medical hospital, Tabriz, Iran, from 2009 to 2010. To evaluate cardiotoxicity (early or late onset), echocardiographic investigation was carried out on 80 persons who had received anthracyclines to treat lymphohematopoietic (Acute lymphoblastic Leukemia [ALL] and Lymphoma) malignancy before the echocardiographic examination. All patients were off treatment.

Results: Mean age \pm SD was 9.74 ± 3.79 years old. 66.25% (53) was male and 33.75% (27) was female. M/F ratio was 1.96. 60 (75%) had ALL and 20 (25%) had lymphoma. 12.50% (10 cases) had left ventricular systolic dysfunction, 25% (20 cases) had left ventricular diastolic dysfunction, and 27.5% (22 cases) had arrhythmias.



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Conclusion: In the current study among survivors of childhood cancer, finding show that, incidence of arrhythmias due to Anthracyclines cardiotoxicity was greater than other side effects.

Keywords: Anthracycline, Cardiotoxicity, Risk Factors, Pediatric, Malignancy.



The Effect of Milk Thistle on Chemotherapy-Induced Hepatotoxicity in Children with Acute Lymphoblastic Leukemia

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Background: chemotherapy in leukemia patients frequently causes inflammation in the liver and despite limited study data, milk thistle is often used for the treatment of chemotherapy associated liver problems. The aim of this study was to compare clinical efficacy of milk thistle with placebo on chemotherapy-induced hepatotoxicity in children with ALL.

Materials and Methods: In a double-blind study, 93 children with acute lymphoblastic leukemia and chemotherapy-induced hepatotoxicity were randomized to a clinical trial with livergol (milk thistle) or placebo. Liver enzymes levels were evaluated during 70 days. The patients were divided randomly into two groups. In intervention group, milk thistle at dosage 7 mg/kg daily was prescribed, and in control group, placebo pills, similar to milk thistle in shape and color, were prescribed daily.

Results: at day 35 and day 70 of study, in the milk thistle arm mean serum levels of ALT and AST were significantly lower than placebo group ($P < 0.001$). In the milk thistle group, during the first 35 days of therapy that patients were taking livergol, there was significant reduction of mean AST and ALT in comparison to next 35 days that patients stopped taking it.

Conclusion: The results of this study suggest that milk thistle has been effective in treatment of liver toxicity among pediatric ALL patients. Future study is needed to determine the effect of livergol as a prophylactic treatment and its effect on leukemia-free survival.

Keywords: Hepatotoxicity, chemotherapy, acute lymphoblastic leukemia, milk thistle



Assessment of Acute Kidney injury by Urinary β 2-MG and NAG in Childhood Cancer Patients Prescribed with Cisplatin, Carboplatin and Ifosfamide as the Chemotherapeutic Agents

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Introduction: Acute kidney injury (AKI) is the clinical dysfunction of kidney also named previously acute renal failure. rapid reduce of glomerular filtration rate (GFR) may continue over hours to weeks, and also be generally reversible

In this study, we evaluate two biomarkers including β 2-MG and NAG for nephropharmacological assessment of childhood malignant patients suffering different cancers prescribed with Ifosfamide, Ifosfamide+Carboplatin and Ifosfamide+Cisplatin as the chemotherapeutic agents were focused for AKI prognosis/diagnosis.

Materials and Methods: All the patients that was treated with specific medications (Ifosfamide, or cisplatin), which admitted from 2017 to 2018 in Seyed-al-Shohada Hospital, included the study. Urine and blood samples of patients were collected day 0, 3, and 6 of each courses of chemotherapy. The AKI was evaluated according to the RIFLE (Risk, Injury, Failure, Loss of kidney function, and End-stage kidney disease) criteria.

Result: 61 courses of chemotherapy in 40 participants suffering different childhood cancers were examined. Among 61 courses of chemotherapy, according to RIFLE criteria, 8.2% indicated AKI, 73.8% enhanced NAG and 80.3% enhanced β 2-MG, respectively. The difference between mean levels of serum β 2-MG, serum NAG/Cr, and β 2-MG/Cr at the day 0 and in the day 6 of the treatment were significant. The mean levels of Cr, β 2-MG, β 2-MG/Cr and NAG/Cr, in patients treated with Ifosfamide based on the Ifosfamide dosage during the time of the treatment were also statistically significant.

Conclusions: In this regard, our analyses showed β 2-MG, β 2-MG/Cr and NAG/Cr were as significant biomarkers. These biomarkers may help physicians to monitor AKI in child



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cancer patients prescribed with chemotherapeutic agents. Consequently, in accordance with negative viewpoints of NAG, it is essential that urinary NAG needs further analysis in the future studies to prove its reliability for AKI prognosis/diagnosis.



Application of Patient Blood Management (PBM) for Usage of Blood Components in the Field of Pediatric Oncology

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Patient Blood Management (PBM) is new era in the field of transfusion medicine with the aim of decrease the need for allogeneic blood & blood component transfusion (TX) by the use of pharmaceutical agents or medical protocols.

Three reasons are the most important things that we should moving to this way, including; 1) The transfusion side effects which may increase length hospitalization, higher risk of morbidity and mortality; 2) The rising costs of blood component preparation from donor, instruments, testing for Transfusion transmitted infections (TTI), increase the need for the more accurate tests, Quality control and all direct and indirect, associated with provision and preparation of allogeneic blood 3) Challenges of maintaining of adequate blood supply by increased demand due to ageing population

PBM incorporates the treatment regimes, by use of safe and effective medical and surgical techniques designed to prevent anemia and decrease bleeding for maintain Hgb concentration, optimize hemostasis and minimize blood loss for improve patient outcome and this need multidisciplinary team approach to conserve a Medication or all protocols that can use the possibility of patient's own blood.

In Oncology field mostly we have critically ill patients who are undergoing the chemotherapy or radiotherapy which prone the patient to pancytopenia. PBM in such patients; including the: 1) Correction of anemia (according to etiology, age and condition of Patient, accompanying problem (RDS, Cardiac, bleeding), Possibility of surgery, 2) Correction of anemia by Supplemental Therapy, Nutritional Support, Decrease Blood sampling, Use of safe Synthetic products, Decrease of volume of blood loss, 3) Finally Consider of more restrictive threshold for Transfusion If there is no way for use of transfusion.

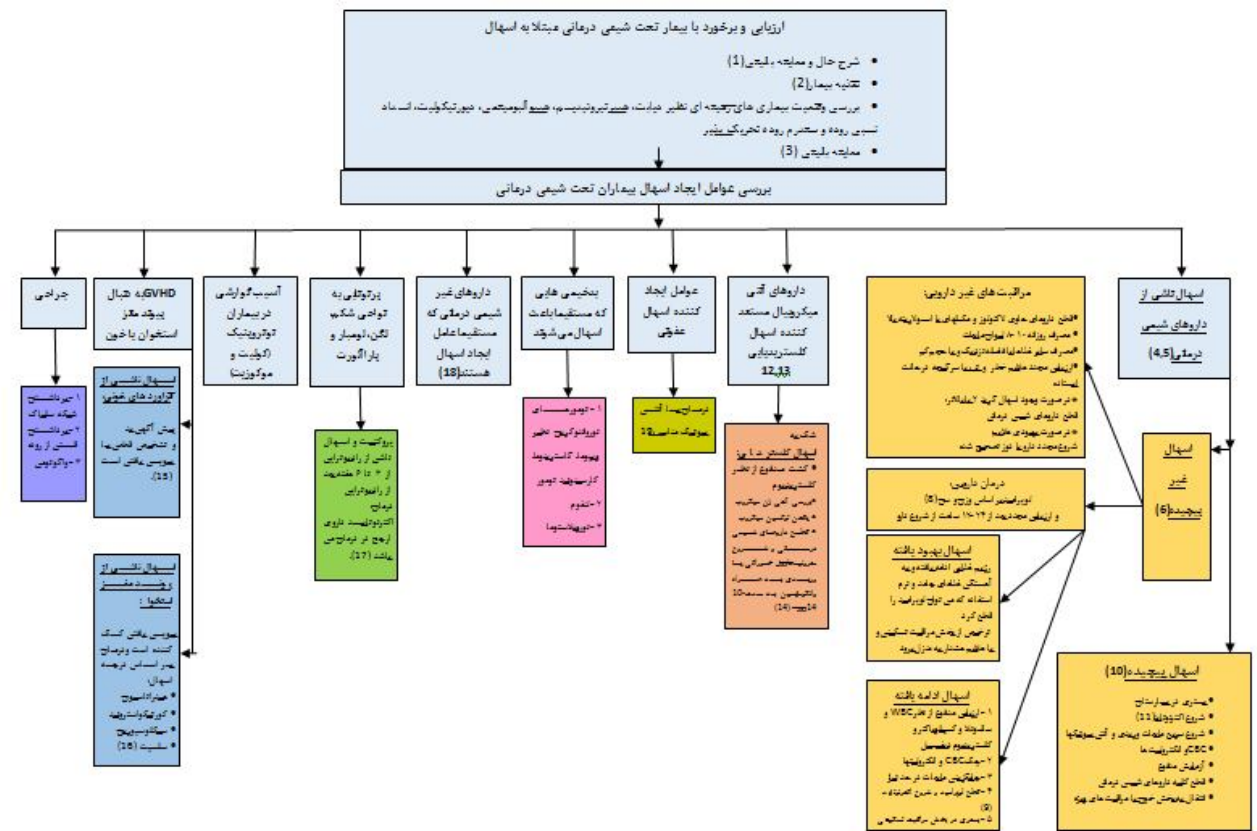
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Chemotherapy Induced Diarrhea

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(1

- گرفتن شرح حال از زمان شروع و تداوم اسهال شامل: وجود تب و درد، کرامپ شکمی، سرگیجه و ضعف و بی حالی، رد کردن sepsis، انسداد روده، و تخمین دهیدراتاسیون و اخذ شرح حال دقیق داروهای مصرف شده
- توجه به وضعیت دفع: شامل دفعات دفع طی ۲۴ ساعت گذشته، قوام مدفوع (وجود خون در مدفوع، مدفوع آبکی)، وجود اسهال شبانه، بی اختیاری مدفوع

(2) توجه به غذاهایی که باعث شل شدن مدفوع می شوند:



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۱. مصرف غذاهای ادویه دار، غذاهای سرخ شده، خیلی سرد یا خیلی گرم و چرب
۲. مصرف نوشیدنی های حاوی سوربیتول زیاد از جمله آبمیوه، هلو، آلو، گیلاس، گلابی
۳. مصرف کافئین

(۳) بررسی وضعیت هیدراتاسیون، کنترل حجم ادرار، وزن و علائم حیاتی و توجه به وضعیت هوشیاری بیمار
(۴) جدول داروهای شیمی درمانی که مستقلا باعث اسهال می شوند.

جدول ۱- داروهای شیمی درمانی که مستقلا عامل ایجاد اسهال میباشند (۴)

5-Fluorouracil
Irinotecan
Leucovorin
Tyrosin Kinase Inhibitors (TKI)
Monoclonal Antibodies
High dose IL-2
Capecitabin

(۵) داروی ایرینوتکان با دو مکانیسم باعث ایجاد اسهال میشود:

- * اسهال زودرس: (کمتر از ۲۴ ساعت) با تظاهرات کولینرژیک شامل کرامپ شکمی لاکریمایون افزایش ترشح بزاق و اشک
- * اسهال دیررس: بمعنی ایجاد اسهال بعد از ۲۴ ساعت اول احتمالا ناشی از آسیب مجاری گوارشی ناشی از متابولیت های دارویی
- (۶) به اسهال گفته می شود که با توجه به جدول ۴ حداکثر گرید ۱ یا ۲ باشد و همراه با علائم خطر از جمله دهیدراتاسیون متوسط تا شدید، تب و نوتروپنی و یا خون در مدفوع نباشد.

(۷)

جدول ۴- شاخص های طبقه بندی اسهال در بیماران شیمی درمانی

Table 1: Common Terminology Criteria for Diarrhea

Toxicity	Grade				
	1	2	3	4	5
Diarrhea	Increase of < 4 stools per day over baseline. Ostomy: Mild increase output compared to baseline	Increase of 4-6 stools per day over baseline. Ostomy: Moderate increase in output compared to baseline	Increase of > 7 stools per day over baseline. Incontinence. Hospitalization indicated. Ostomy: Severe increase in ostomy output compared to baseline. Limited self care ADL	Life-threatening consequences. Urgent intervention indicated	Death.

(۸) درمان دارویی:



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در اسهال غیر پیچیده از لوپراماید بر اساس وزن و سن که در کودکان ۲ تا ۶ سال (۱۳ - ۲۰ کیلوگرم) یک میلی گرم ۳ بار در روز و سپس در روز های بعدی به ازای هر بار اسهال ۰/۱ میلی گرم بر وزن توصیه میشود. در بچه های ۶ تا ۸ سال (وزن ۲۰-۳۰ کیلو گرم) ۲ میلیگرم دو بار در روز و در روزهای بعد ۰/۱ میلیگرم بر وزن به ازای هر بار مدفوع شلو در کودکان ۸ تا ۱۲ سال ۴ میلیگرم بعد از دفع اولین مدفوع شل و سپس ۲ میلیگرم بعد از هر نوبت اسهال توصیه می گردد. دوز این دارو در در کودکان زیر ۲ سال تعریف مشخصی نشده است. مصرف این دارو در مرحله ی نگهدارنده نباید از مقدار این دارو که در ابتدا مصرف می گردد بیشتر باشد.

* در بیماران دریافت کننده ایرینوتکان توصیه میشود با ایجاد مدفوع شل داروی لوپراماید آغاز و حداقل بمدت ۱۲ ساعت ادامه یابد.
(۹) اوکترئوتاید ۲ میلی گرم به ازای هر کیلوگرم زیرجلدی هر ۸-۱۲ ساعت. در اسهال غیر عفونی می توان از ترکیبات حاوی اپیوئید و دیفنوکسیلات استفاده نمود

(۱۰) به اسهالی پیچیده گفته می شود که با توجه جدول ۴ گرید ۳ یا ۴ باشد. و یا گرید ۱ و ۲ همراه با یکی یا بیشتر از علائم کرامپ شکمی، تهوع و استفراغ و نشانه های sepsis و دهیدراتاسیون متوسط تا شدید، تب و نوتروپنی و یا خون در مدفوع و کاهش هوشیاری باشد.

(۱۱) اوکترئوتاید که شروع با loading دوز ۲-۱ میلیگرم به ازای هر کیلوگرم که تا سه بار در روز قابل تجویز است و سپس ۱ میلی گرم به ازای هر کیلوگرم زیرجلدی هر ۸-۱۲ ساعت یا وریدی با دوز ۵۰-۲۵ میکروگرم در ساعت (منقسم سه بار در روز) استفاده شود و در صورت دهیدراتاسیون شدید دوز دارو تا ۵۰۰ میکروگرم سه بار در روز افزایش داده می شود.
(۱۲)

جدول ۳- داروهای آنتی میکروبیال مستعد کننده اسهال کلسترییدیایی

Anti microbial predisposing to clostridium difficile associated diarrhea		
Very commonly related	Commonly related	Uncommonly related
Clindamycin Ampicillin Amoxicillin Cephalosporins	Other penicillins Sulphonamids Trimethoprim Cotrimoxazole Quinolones	Aminoglycosides Bacitracin Metronidazole Teicoplanine Rifampine Chloramphenicol Tetracycline Carbapenem Daptomycin

(۱۳) اسهال کلسترییدیایی از عوامل مهم و در صورت عدم درمان با مرگ و میر بالایی همراه می باشد. در صورت هر کدام از موارد زیر باید به اسهال کلسترییدیایی شک کرد:

اسهال بیش از ۱۰ بار در روز - لکوسیتوز-افزایش کراتینین سرم-کاهش آلبومین سرمی-ایلئوس و مگاکولون-درد و دیستانسیون شدید شکمی

و وجود آسیت و یافته های شکمی

(۱۴) مصرف داروهای کاهنده حجم اسهال از جمله دیفنوکسیلات و لوپراماید توصیه نمی شود. توصیه به رعایت بهداشت دست ها و در صورت امکان جداسازی در جهت جلوگیری از پخش بیماری کمک کننده است.



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(۱۵) اسهال ناشی از GVHD می تواند در زمینه پیوند آلورژیک مغز استخوان یا ثانویه به تزریق فرآورده های خونی باشد. اسهال ناشی از تزریق فرآورده های خونی پیش آگهی خوبی نداشته و رکن اساسی پیش گیری از بروز این واقعه می باشد و شک به آن با رد سایر علل مسبب علائم بالینی می باشد. این علائم شامل: تب راش پوستی اسهال پان سیتوپنی زردی و نارسایی کلیه. تشخیص قطعی این نوع اسهال با بیوپسی بافتی تایید می گردد

(۱۶) اسهال به دنبال پیوند مغز استخوان نیز می تواند با راش پوستی و زردی همراه باشد و یکی از علل مهم مرگ و میر به دنبال پیوند است. این نوع اسهال بر اساس شدت به ۴ مرحله تقسیم می گردد. ضمن اینکه سایر علل ناشی از اسهال در این گروه رد گردید تشخیص با بیوپسی بافتی از ارکان درگیر خواهد بود. بر اساس درجه شدت اسهال از درمان هایی چون هیدراسیون و استفاده از داروهایی چون کورتیکو استروئید سیکلوسپورین و سلسپت می توان استفاده نمود

(۱۷) رادیو تراپی به ناحیه شکم و لگن با آزادسازی پروستاگلاندین ها و عدم باز جذب نمک های صفراوی و در نتیجه افزایش پریستالتیسم باعث اسهال میشود. در موارد شیمی درمانی همزمان احتمال وقوع اسهال افزایش میابد. پروکنتیت واسهال ناشی از رادیوتراپی از ۳ تا ۶ هفته بعد از رادیوتراپی با علایمی چون اضطراب در دفع، کرامپ، اسهال و خونریزی دیده میشود علیرغم مطالعات گوناگون در زمینه استفاده از لوپرامید - اپیوئید ها و سوکرالفیت همچنان اکثر نتایج داروی ارجح و موثر در درمان اسهال بدنبال رادیوتراپی میباشد.

(۱۸)

جدول ۲- داروهای غیر شیمی درمانی که مستقلا عامل ایجاد اسهال می شوند

- ۱- انتی بیوتیک هایی مانند: سفالکسین، آموکسی سیلین، کلیندامایسین، کوآموکسی کلاو
- ۲- مکملهای حاوی پتاسیم و انتی اسید های حاوی منیزیم
- ۳- داروهای پروکنتیک (متوکلورامید)
- ۴- ضد التهابی غیر استروئیدی
- ۵- برخی محلولهای حاوی سوربیتول (استامینوفن ها)
- ۶- محلولهای هیپرتونیک

(۱۹)

جدول ۵- عوامل ایجاد اسهال عفونی و درمان

(۴)

cryptosporidium	Niclosamide ,parmomycine,azithromycine,
Giardia lamblia	Tiabendazole,Mebendazole, Niclosamide
Microsporidium	Albendazole,Metronidazole, Niclosamide
Entamoba Histolytica	Metronidazole,Tinidazole,idoquinole
Strongyloides	Ivermectine,Thiabendazole
Isospora Beli	TMP-SMX ,Pyrimethamine,Ciprofloxacin



Supportive Care for Malnutrition in Childhood Cancer: A Narrative Review

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Background and Aim: Malnutrition is a common complication of children with cancer, which varies from 8% to 60%. A diminished nutritional status may be a contributing factor for decreased immune function, delayed wound healing, and disturbed drug metabolism influencing prognosis. Children with cancer are particularly vulnerable to malnutrition, because they exhibit elevated substrate needs due to the disease and its treatment. At the same time, children have increased requirements of nutrients to attain appropriate growth and neurodevelopment. Furthermore, childhood cancer survivors are at a higher risk of developing health conditions such as osteoporosis, and cardiovascular disease. Purpose of this paper is to review recent supportive care interventions dealing with malnutrition in childhood cancer.

Material and Methods: The research was conducted by searching PubMed, Scopus, Cochrane, CINAHL, with no restrictions related to the kind of publication, in a time span that includes the last 5 years and 16 studies were included.

Results: According to recent studies, the primary objectives of nutritional interventions in pediatric oncology should be: the maintenance of body stores as close to the ideal as possible, minimization of wasting, promotion of appropriate growth development, and providing a good quality of life. Nutrition strategies are indicated in all affected children, beginning with the diagnosis of cancer to prevent and/or restore abnormalities in growth development before nutritional and general status are severely compromised. These should be integrated into cancer treatment protocols starting directly after admission independent of the initial body weight to establish the essential role of adequate nutrition in the mind of the child and parents. The assessment of the nutritional status is indispensable to stratify the child into nutritional risk groups in view of actual nutritional condition and the extent of the disease, considering psychological and socioeconomic aspects as well as the prescribed multimodal procedures for each tumor type.

Conclusion: Based on analyzed studies; nutrient status can be optimized through the use of personalized dietary supplement protocols (PDSP) that are based on regular testing of blood-based biomarkers. In addition the multidisciplinary management including close



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communication and collaboration between the child, family, and the medical team to determine together the expectations for dietary support as well as to develop further objectives are needed for optimizing nutritional status.

Keywords: Cancer, childhood, Dietary support, Malnutrition



Correlation between Vaccination status and the Risk of Childhood Acute Lymphoblastic Leukemia

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Introduction: Acute lymphoblastic leukemia is the most common form of leukemia in children. Several lines of evidence suggested a role for infection and involvement of immune system in the pathogenesis of ALL. Vaccination as a main modulator of immune system may alter the risk of ALL. However, conflicting results have been reported in this issue. A systematic review and meta-analysis was done to analyze the vaccination history in ALL patients.

Materials and Methods: Eight studies were selected for systematic review. The vaccination status of Measles, Mumps, and Rubella (MMR), Diphtheria, Tetanus and Pertussis (DPT), Polio and Bacillus Calmette-Guérin (BCG) were investigated in ALL patients. Inclusion criteria comprised studies conducted on patients under 20 years old. Studies without full text or presented only in conferences were excluded.

Results: Results indicated no significant association between risk of childhood ALL and vaccination status ($P > 0.05$). Also, no significant association was seen between vaccination status and pathophysiological features of ALL ($P > 0.05$). These results were repeated when sub-analysis was done regarding the total number of vaccine doses and vaccine type. Moreover, when individual vaccines were evaluated, no significant association was observed between risk of childhood ALL and vaccination status ($P > 0.05$).



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Conclusion: Based on the present study, vaccination may not be involved with altered risk of ALL. However, this preliminary result should be confirmed with large scale studies.

Keywords: Acute lymphoblastic leukemia, Vaccination, immune system



Report of a Known Case of Recurrent Acute Myeloid Leukemia with BK Virus grade IV Hemorrhagic Cystitis after Allogenic Transplantation with Dramatic Response to IV and Intravesical Cidofovir

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Introduction: The BK virus, a member of the polyomavirus family, has uncommon significant consequences of infection. The BK virus rarely causes disease but is typically associated with patients who have had a transplant; many people who are infected with this virus are asymptomatic. If symptoms do appear, they tend to be mild: respiratory infection or fever.

The cornerstone of therapy is reduction in immunosuppression. A recent surge in BKVAN correlates with use of potent immunosuppressant drugs, such as tacrolimus and mycophenolate mofetil (MMF). Studies have not shown any correlation between BKVAN and a single immunosuppressive agent but rather the overall immunosuppressive load.

Case description: A 13 years old male with recurrent Acute Myeloblastic Leukemia (AML) – M4 was undergoing chemotherapy regimen at MAHAK Pediatric Cancer Treatment and Research Center (MPCTRC). +28 days after allogenic transplantation with protocol BU/CY/Mel from his brother, he had severe hematuria in urine. So he was screened for the reason of hematuria. The results of screening showed that he had positive BK virus in urine (viral load PCR tests: 7128037228 IU/ML), but BK virus was negative in his plasma sample.

According to grade IV hemorrhagic cystic (excretion of clots from the urinary tract), cidofovir was administered for the first time as IV and two times as intravesical. After the administration of cidofovir, the symptoms of hematuria improved and load of BK virus decreased that finally accounted as zero.

At this time that is one year after his treatment, the patient alive and without any complain.

Keywords: Acute Myeloid Leukemia, BK virus, Transplantation



Comparison the Relationship between Procalcitonin and CRP with Prognosis of Children Admitted with Fever and Neutropenia at Oncology Ward

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Introduction: The present study aimed to compare the relationship between Procalcitonin and CRP with prognosis of children admitted with fever and neutropenia.

Method and material: In a descriptive analytical study, patients with fever and neutropenia who underwent chemotherapy were included. Duration of fever, hospital days, mortality rate, Procalcitonin and CRP level, and other patient information were included in the checklist and analyzed.

Results: In this study, 31 patients presenting with fever and neutropenia were enrolled. The results showed that people with high procalcitonin levels had a longer duration of fever and hospitalization than those with lower levels of Procalcitonin. Statistically significant level was also obtained. The results of our study showed that there is a significant relationship between the level of Procalcitonin and sepsis ($P = 0.001$). But CRP level was not significantly correlated ($P = 0.372$).

Conclusion: Procalcitonin might be an adjunctive biomarker in identifying severity of disease, duration of antimicrobial therapy and choosing the right antibiotic for cancer patients with fever and neutropenia. Procalcitonin guided algorithm may limit the duration of antibiotics, reduce adverse events and prevent the emergence of antimicrobial resistant patients.

Keywords: Pediatric, Fever and Neutropenia, Procalcitonin, CRP, Prognosis



Plasmapheresis, as a Treatment of Asparaginase Induced Hypertriglyceridemia in Acute Lymphoblastic Leukemia

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Objective: Asparaginase, an important component of therapy for acute lymphoblastic leukaemia (ALL), inhibits protein synthesis. Many of its sideeffects, such as allergic reaction, coagulopathies, encephalopathy, seizures, pancreatitis, hepatotoxicity and hyperglycaemia, are familiar to oncologists. Conversely, the possibility of therapy-induced hyperlipidaemia and its treatment generally is not appreciated.

Methods and materials: Our study carried out between October 2008 and April 2019 with 89 patients undergoing chemotherapy at a teaching children's hospital in Babol, Iran. Patients were treated with anti-leukaemic agents according to the protocols for standard-risk and high-risk ALL. For patients biochemical markers and Lipid profile were checked during the induction phase chemotherapy. Lipid profile of patients was recorded. Data was analyzed using SPSS 16.

Results: Of the 165 patients, the mean peak triglyceride and cholesterol levels during asparaginase therapy in induction phase were significantly higher than the levels in the other phase of treatment. Four patients had hypertriglyceridemia (TG and cholesterol levels > 3000mg/dl). One patient died. Two patients who couldn't do plasmapheresis have problem in walking and liver cirrhosis. For one patient plasmapheresis was done. She has no problem know.

Conclusion: Severe hyperlipidaemia may be the cause of some morbidity and mortality in children receiving asparaginase. Asparaginase-induced hyperlipidaemia should be monitored in ALL patients during the induction phase of treatment. Plasmapheresis should be done in the treatment of Ocoaspar induced hypertriglyceridemia in ALL.

Keywords: Hyperlipidaemia, Asparaginase, Acute lymphoblastic leukaemia.



Gynecomastia as a Late Complication of Childhood Cancer and its Treatment that Can Affect the Quality of Life of Male Survivors

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Background: Childhood cancer is relatively rare, and nowadays it is curable in more than 80% of patients. Childhood cancer therapy is directed not only at improving survival, but recently, we also concentrate on reducing late effects. We want cancer children to survive with an excellent quality of life.

Methods: In this review article, all articles related to endocrine complication of cancer in children were collected. Additionally, studies that related to gynecomastia and fertility outcome of the survivors of childhood cancer were selected and included in study.

Results and conclusion: Gynecomastia and fertility outcome of the survivors of childhood malignancies should be considered in follow-ups of teen ages and young adults, and should be approached in an accurate manner and also managed in comprehensive teams. We designed algorithmic guideline of approach to gynecomastia in cancer survivors.

Keywords: Childhood Malignancy, Breast Enlargement, Cancer Survivors



The Effect of Distraction on Physiologic Parameters in Children Undergoing Painful Procedures in the Oncology Department: Randomized Controlled Trial

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Background: Diagnostic tests and treatment technique for pediatric cancers involve invasive and painful procedures. Perception of pain among children is complex, and entails physiological, psychological, behavioral, and developmental factors. Although pharmacologic interventions can be used, distraction is a simple and effective technique that directs children's attention away from noxious stimuli.

Objective: To assess the effect of distraction on physiologic parameters in children with cancer of undergoing painful procedures.

Method: This is a clinical trial with a pretest-posttest design. The study sample consisted of children between the ages of 7-12 years who underwent intra-spinal injection of chemotherapy drugs at the Aliebneabitaleb Hospital, Zahedan, Iran, 2017. 90 patients were randomly assigned to the control group and the experimental group. Experimental group were given passive distraction in the form of cartoon movie and control group were not during intra-spinal injection of chemotherapy drugs. Then, for each participant was measured for heart rate and oxygen saturation.

Result: The preprocedure to postprocedure improvement in arterial oxygen saturation was significantly greater in the experimental group than the control group ($p < 0.001$) while the decrease in HR was significant ($p = 0.04$).

Discussion and Conclusion: Based on the results, distraction therapy can be effective in improving hemodynamic indices (HR and SaO₂). Some of studies have shown that distraction is a promising intervention for procedural pain. However, there is limited evidence demonstrating its effectiveness in pediatric oncology patients. Thus distracting



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techniques are an interesting nonpharmacologic option for nurses to distract children, giving them a sense of control over their pain and improving their hospital experience, and heightening awareness around child participation in health care decision making .

Keywords: Distraction, Physiologic Index, Children



Psychological Support of a Child with Cancer to Cope with School: a Case Report

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Background and objectives: After extensive research, a group of experts in pediatric oncology, psychology and sociology were able to develop evidence-based standards for pediatric psychosocial care. One of these standards, published in the official journals of International Society of Pediatric Oncology, is dedicated to supporting school-aged children with cancer and their families. In that regard, a school staff member who has the required knowledge and skills must be selected for the task so that he or she can, on one hand, provide the information about diagnosis, treatment, and consequences of the child's disease to the school staff, and on the other hand, coordinate the relationship between the child, family, school, and the medical care team. The purpose of this case report is to illustrate the process of the providing school support for a child with cancer within the standard framework using the psychological approach of Kids' Skills.

Methodology: Kids' Skills is a step by step method for helping children overcome behavioral and emotional problems. It is based on solution-focused psychology. The approach has been developed by psychiatrist Ben Furman, director of Helsinki Brief Therapy Institute. One of the systematic steps of kids' skills is gathering supporters and its complementary program for supporting children focuses on the collaboration between parents and school teachers.

Case Report: Ali is a third grade student. He has leukemia. After undergoing treatment in hospital, Ali now returns to school. The boy is unable to adjust himself to the school after four weeks of attendance. For that reason, the principal comes to the Kids Skills and Health Room to come up with a solution. The child psychologist of Kids Skills and Health Room mentions the standard developed for school-provided support for children with cancer, and asks the principal to select one of the staff members as Ali's supporter at school. The health teacher is selected as a coordinator between the child, family, school staff, and the health care team. In a meeting with the health teacher, the child psychologist provides the Pediatric Quality of Life Inventory (PedsQL™ 4.0) to be filled out with the help of Ali's parents. The results of the completed Inventory indicate that



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this boy does not have an acceptable school functioning. He cannot properly pay enough attention in the class, forgets the lessons, and struggles to do schoolwork. The child psychologist delivers a fact sheet on childhood cancer, which is the Persian translation of the KidsHealth.org guidelines that address the potential problems of elementary school children with cancer in cognitive, emotional, and social domains, to the health teacher to share with Ali's class teacher and his family. In order to help Ali cope with school anxiety after a meeting with his parents, class teacher and the health teacher agree to teach him the skill of getting along with teacher.

Keywords: child with cancer, cope with school, psychological support.



Anxiety and Depression in Parents of Hospitalized Children in Pediatric Ward of Masih Daneshvari Hospital

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Background: One of the most challenging circumstances of a family is having a sick member. Indeed, getting sick is one of the critical issues that may impose stress to a family. This situation might be more important when the affected family member is a child and he/she needs to be admitted to hospital according to physician's advice. This pressure might be present for a long period of time, even after discharge of the child. This study wants to evaluate depression and anxiety rates in the parents of children admitted in pediatrics ward of Masih Daneshvari Medical Center

Methods: This study is a descriptive cross-sectional report. A total of 92 parents were included into the study and required data with regard to depression and anxiety scales were gathered through Beck's Questionnaire. Other required data were recorded adequate during interview. Data were analyzed using student's t-test and ANOVA.

Findings: Our results showed that 23.9% of the parents of children who were admitted in hospital suffered from subtle depression. This ratio for mild and moderate depression was 13.0% and 47.7% respectively. Severe depression was showed to be 16.3%. On the other hand, 6.5% of parents had subtle anxiety, 27.2% showed mild anxiety, 28.3% had moderate anxiety and as much as 38.0% of study participants had severe anxiety. Moreover our results showed that children's age, parents' age, level of education, job and gender of the parents, and accommodation status of the parents are significantly related to depression and anxiety levels.

Conclusion: This study shows that depression and anxiety are among common complaints of the parents who have an admitted child. These psychiatric complaints are related to parents' characteristics as well as social factors. Hence the supportive role of nursing system could be help parents to manage the stress and in turn improve child's care.

Keywords: anxiety- depression- parents- inpatientschildren



Hematopoietic Stem Cell Transplant (HSCT) Outcome in Amirkola Children Hospital

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Background and objectives: Hematopoietic Stem Cell Transplantation (HSCT) is used for treating in patients with different hematologic and malignancies. The success rate of HSCT in different centers is varying. This study aimed to assess the HSCT Outcome in Amirkola bone marrow transplantation (BMT) ward over nine years.

Materials and methods: This cross-sectional study was performed for 164 patients were admitted to BMT ward from 2009 to 2013. All patients under study spent at least six month after transplantation. They divided in two groups include: 1- Thalassemia and other hematologic cases and 2- different malignancies cases. In both groups, HLA Typing, screening for HIV, hepatitis B and C, cytomegalovirus and toxoplasmosis tests were done before transplantation for donor and recipient. We determined engraftment (Chimerism) by DNA analysis in donor and recipient evaluation before and after transplantation. All adverse events, including: GVHD, infection, VOD, non-Engraftment, drug adverse effect, renal complications, catheterization complications and rejection, were recorded. Finally, mortality, relapse recorded in each of the two groups.

Findings: The study included 46 patients with Thalassemia major, 1 aplastic anemia, 1 severe neutropenia, 2 fanconianemia, 49 multiple myeloma, 23 hodgkin, 16 ALL, 13 NHL, 9 AML, 1 MDS, 1 Ewing, 1 rhabdomyosarcoma, 1 neuroblastoma. Age and gender distribution and any complications such as VOD, GVHD, non-engraftment, rejection, infection, mortality, morbidity, and survival rate consider. All data collected and analyzed.

Conclusion: Results showed that relapse rate was not significant between two groups but mortality rate was higher in difference malignancies rather than Thalassemia cases. The results of this study were comparable and satisfactory linked with other transplant centers

Key words: Stem cell transplant, Thalassemia major, Malignancy



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Identification and Needs of Empowerment Families in Children with Acute Lymphoblastic Leukemia: An Exploratory Descriptive Study

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Introduction: Acute lymphoblastic leukemia is the most common type of childhood cancer that is common among children aged 2-5 years and in boys more than girls. Despite progress in the treatment of leukemia, it is the second leading cause of death in children under the age of 15 following accidents in the world and in Iran. It affects not only the affected child, but also all family members, and creates severe changes in the various dimensions of family life. The care of affected children of this age is entirely dependent on the family, and with the advancement in treatment and increased life expectancy, the relocation of care from the hospital and the health care system to home and family care, changes in the various dimensions of family life, and the participation of members. The family increases as a family caregiver. The family in the care of affected children faces a variety of unmet needs that can greatly affect the care process. Therefore, identifying these needs is an important step in empowering the family to provide quality care and maintain the integrity and integrity of the family. Therefore, this study aimed to identify and identify the needs of empowerment families in children with acute lymphoblastic leukemia.



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Materials and Methods: This is a qualitative exploratory descriptive study. Participants included 40 family members of children with acute lymphoblastic leukemia admitted in pediatric oncology ward of Seyed Shohada Hospital in Isfahan and 18 members of the hospital's treatment team who had entry criteria. Participants were selected in a targeted way and with a maximum of variation and entered the study. The data in this study was used to identify and identify the needs of empowerment of families from 63 semi-structured interviews (40 interviews with family members and 23 interviews with treatment team members) and four group interviews (2 family interviews) And 2 group interviews with the treatment team members), notes were collected in the field and observation. Data collection continued to saturation. The study data were analyzed using a conventional or expensive contractual content analysis approach.

Results: In the analysis of qualitative data, 61 subclasses were obtained and similarly, with the integration of the same classes, 17 subclasses were obtained and finally, the five main categories of "compliance and adaptation to disease", "management of physical, psychological and social consequences From disease ", " reconstructing relationships and interactions, "" spiritual empowerment in accordance with the situation, "and" the need for comprehensive family empowerment ".

Conclusion: Today, the status and role of the family in the care of children forms the undeniable part of the care system. Therefore, attention to needs and empowerment of the Hayek family are essential for the health system. By identifying and identifying family needs, it is possible to design and implement an empowerment program based on their needs, which can be considered as an effective step in the active participation of the family in the treatment program and decision-making process. The findings of this study could be of great help to policymakers in the field of healthcare and medical education in the preparation of programs.

Key words: Acute lymphoblastic leukemia, family, children, empowerment, family needs, family-centered care



Pain in Pediatric Oncologic Patients: Attitudes and Myths

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Background & Objectives: Measuring pediatric pain by its intensity alone is like describing music only in terms of its loudness. Other factors such as the underlying cause, neuropathic versus nociceptive are extensively important in assessing and managing of pediatric pain.

On the contrary of controllable pain management in adulthood, pediatric pain is almost underrated and neglected.

Method: A narrative literature review about Oncology pediatric pain issues was performed in the English language.

Conclusions: Assessment and Treatment in pediatric patients needs multi aspect skills. Reasons for differences between stated pain rating and observed behavior are varying aspect influencers such as inability of understanding the scale by the affected child and different social factors.

So the main topic is a thorough assessment of pain in children which proper usage of pain assessment tool types, physical Examination and History taking and advocating a step-wised approach in treating pain.



The Effect of a Care Program Based on Roy Adaptation Model of Nursing on Depression, Anxiety and Stress Scores in Colorectal Cancer Patients in Educational and Treatment Centers of UMSU, Urmia, Iran, 2016

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Background & Aim: Determination of cancer causes deep emotional problems such as stress, anxiety and depression in the patient and his or her family. Incompatibility with disease and its complications can also affect interpersonal communication, clinical course of disease and its prognosis. The aim of this study was to study the effect of a care program based on Roy adaptation model of nursing on depression, anxiety and stress scores in colorectal cancer patients in educational and treatment centers of UMSU, Urmia, Iran, 2016.

Methods & Materials: In an experimental clinical trial, two groups of 18 patients with colorectal cancer admitted to the educational and treatment centers of Urmia by using a demographic form, Roy assessment form, and DASS-21 assessment tool for evaluating of anxiety, depression, and stress levels. Samples were randomly selected from the wards and the two groups were control and intervention. At first, pretest was performed in both control and intervention groups. After 2 months of follow up, counseling and completion of intervention stages using post-test in both groups and finally data analysis.

Results: In the pre intervention stage, the mean scores of depression, anxiety and stress variables were not significantly different in the control and intervention groups. However, in the post-intervention phase, the mean scores of the variables in the control group were increased and were decreased in the intervention group, vice versa and there was a significant statistical difference between the two groups ($p < 0.05$).

Conclusion: According to prevalence of high rates of depression, anxiety and stress among cancer patients, non-pharmacological and less costly methods can be used, such as using Roy adaptation pattern to achievement of these patients to control and reduce of anxiety, depression and stress and create an environment with less stress for these patients.

Keywords: Care plan, compatibility pattern, depression, anxiety, stress, colorectal cancer



Study of Depression and Anxiety in Patients with Cancer Hospitalized in Educational and Treatment Centers of Urmia University of Medical Sciences, 2016

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Background & Purpose: Cancer is one of the most important diseases in the present century. Cancer patients suffer from many physical, psychological and social problems that impair their quality of life and cause depression and anxiety, which has a negative effect on their performance conditions, quality of life, duration of hospitalization and even their therapeutic outcomes. The aim of this study was to investigate depression and anxiety in patients with cancer in educational and treatment centers of Urmia University of Medical Sciences.

Materials and Methods: This cross-sectional descriptive study was conducted to evaluate the anxiety and depression in 400 hospitalized cancer patients. To evaluate depression and anxiety, Hospital anxiety and depression scale (HADS) questionnaire was used. The findings were analyzed by using chi square test and SPSS16 software.

Results: Based on the findings, the largest number of patients (31.75%) was breast cancer patients, 85.5% of them had depression and 85.25% had anxiety. Frequency of mild depression was mild: 27.65%, moderate: 30.73% and severe: 41.62%, and anxiety,



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was 25.43%, moderate 25.63%, and severe 54.5%, respectively. A significant relationship was between depression and anxiety with type of malignancy, duration of hospitalization, educational level and gender ($P \leq 0.05$). Suicidal tendency and female relationship ($P = 0.04$), and type of cancer and type of treatment protocol ($P \leq 0.03$) was significant.

Discussion: Anxiety and depression are the most important problems of cancer patients. Therefore, careful planning and special attention for rapid diagnosis, treatment and follow up of anxiety and depression disorders in cancer patients seems to be very important.

Keywords: Depression, Anxiety, Cancer



Effect of olanzapine on Chemotherapy-Induced Nausea and vomiting in Children with malignancy

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Introduction: Chemotherapy-induced nausea and vomiting are one of the most important issues in the quality of life and the continuation of treatment for children with malignancy. In this study, the efficacy of olanzapine in children receiving moderately and highly emetogenic chemotherapy was studied.

Materials and Methods: A triple blind clinical trial was performed on 60 children receiving chemotherapy. Patients cross overed from rolanzapine to placebo (oral olanzapine, 0.1 mg / kg daily) during the course of the trial. The severity of nausea and vomiting (According VAS and WHO systems) induced by chemotherapy in anticipatory, acute and delayed phases were compared in two groups.

Results: Sixty malignant children with the mean age of 9.81(±2.78) were studied. The mean of severity of nausea and vomiting based on VAS and WHO score in acute and delayed phases was evaluated and the difference between the two groups was significant based on the VAS and WHO score ($P < 0.0001$); moreover, Olanzapine has a greater suppressing effect on vomiting in patients who received moderately emetogenic chemotherapy ($P = 0.0009$) in the acute phase.

Conclusions: Olanzapine significantly improved nausea and vomiting control in children receiving moderately and highly emetogenic chemotherapy and its effectiveness in controlling vomiting were better in the acute phase of moderately emetogenic chemotherapy.

Key words: Olanzapine - children- Chemotherapy-induced nausea and vomiting



Quick Glance in Effective Palliative Care in Pediatric Neoplasms

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Background and aims: According to recent reports, complete palliative care comprises evaluating and intervening on behalf of patients' psychological and physical symptoms.

Methods: in pediatric neoplasm effective palliative cares it is too important. These strategies prepare validated questionnaire of bereaved parents and chart reviews of the engaged Children. Also effective palliative cares propose the good management for children with cancer experience complex psychosocial symptoms during cancer treatment with exponentiation of these symptoms at end of life; to include symptoms of anxiety and depression.

Results: Cancerous Children and their parents may request to talk about the meaning of being ill, predominantly prognosis. In this regards, care team contribution in these conversations may be imperative for these patients and their family.

In most cases physician-family communication about a child end of life or prognostic concerns rarely documented the child presence during these important conversations. Remarkably, child families and survivors describe a need for honest and respectful communication in addition to the provision of psychosocial support. It seems that accurate, clear, and understandable communication with Children's parents are valuable. Patients with cancer are needed to receive end of life care that is reliable with their preferences once they have had the opportunity to converse their wishes regarding end of life care with a physician.

Conclusion: these issues are related to good care and better psychosocial outcomes. These subjects emphasize the significance of ongoing supportive communication, predominantly as cancer progresses.



The Prevalence of Complementary Medicine Use in Supportive Care in Pediatric patients with Cancer

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Background: Survival rates of pediatric cancer patients are rapidly increasing over the last decade due to the advent of new anti-cancer treatments. But during illness, survivors experience multitude of symptoms such as pain, fatigue, anxiety, depression, insomnia and nausea/vomiting. So, in order to relieve these symptoms, the use of complementary therapies is increasing in these patients. We aimed to assess the epidemiological aspects of using complementary medicine for childhood cancers in a referral children hospital in Iran.

Methods: The data of children suffering different types of cancers and underwent chemotherapy at Ali-e-Asghar children hospital in Tehran in 2018 were collected retrospectively.

Results: We asked all parents about use of different types of complementary medicine (herbal medicine, acupuncture, massage therapy and homeopathy). The application of integrative medicine before the disease was expressed by 51.6% that significantly increased to 77.4% following disease occurrence. The most prevalent type that was used by patients was herbal medicine. The most reason for using integrative medicine was expressed to be the better controlling chemotherapy side effects (83.3%) and the most common cause for no using integrative medicine was lack of enough knowledge about the benefits or disadvantages of such medicine. Only 18 out of 48 mothers (37.5%) reported the self-usages of integrative medicine to their physicians.

Conclusion: Two-third of mothers uses integrative medicine for their cancerous children. The most reason for using integrative medicine is its ability to better controlling chemotherapy side effects only one-third of mothers reported the use of integrative medicine among their children to physicians. So it is important for physician to ask these



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patients about use of complementary medicine and inform them about some drug interaction.



The Effect of ROY Adaptation Model on Care Resiliency and Suffering in Mothers of Children Treated with Chemotherapy

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Introduction and Objective: Having a child with cancer can make a stressful event for the family, especially the mother. Educating Mothers based on the Roy Adaptation Model can help reduce problems. This study performed with the purpose of determining the effect of Roy Adaptation Model on the resilience and suffering of mothers whose children undergo chemotherapy.

Materials and Methods: In this research, 36 mothers of children who were referred to the oncology department of the Taleghani hospital were investigated in 2017. Sampling was done in nonprobabilistic sampling manner and randomly divided into two groups, the test and control groups. The test group received Roy Adaptation Model in 7 sessions over a period of four weeks. The data were collected using demographic, (Conver & Davidson) resilience and (Elmstahl) caregiver suffering questionnaires. Data were analyzed using independent sample t-test and paired t-test and covariance analysis in SPSS version 18 ($p < 0.01$).

Results: The Results showed that there was no significant difference between the two groups in the level of resilience (41.05 ± 15.18) and suffering (70.44 ± 7.04) of mothers before intervention. But after education, the average of resilience in the test group (71.71 ± 6.3) was increased and the suffering (50.94 ± 4.58) decreased, which was statistically significant ($p < 0.01$).

Conclusion: Based on the Results of this study, the effect of Roy Adaptation Model on the resilience and caregiver suffering of mothers of children who undergo chemotherapy was confirmed. Therefore, it is suggested that future studies carry out long-term follow-ups. Long-term followup evaluations can help understanding the long-term effects of this treatment on mothers and children.

Key words: Chemotherapy, Roy adaptation model, Resilience, Caregiver suffering



Evaluation of Mental Health in Mothers of the Children with Cancer

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Introduction: Cancer in comparison with other diseases with poor prognosis, creates more concern for patient and the family. Occurrence of cancer in one of the children is a crisis; that affects all members of the family. Having a child diagnosed with cancer cause emotional instability, Lack of self confidence and tension in members of the family specially parents and particularly mother. When a child is sick, mother involves more than father and feels more responsibility in treatment and decision. When cancer is diagnosed she will be shocked and will have psychological reactions such as anxiety, depression, denial, and lack of confidence.

We designed and arranged this study to evaluate psychological health of these mothers more accurately. The result can be used to develop effective clinical services to improve quality of life of these mothers.

Materials and Method: This research is a descriptive and sectional study in three month; September, October and November- 2016) and has been done on one hundred mothers of children with cancer in educational health center of Taleghani hospital in Gorgan city. These mothers have completed the (GHQ-28)

General health Question-28 in the first visit of their children. Information on psychological health of these mothers- severity of symptoms, common psychological complaints and health situation has been evaluated with GHQ- 28

Results: Average of GHQ-28 scores in subscale of physical symptoms was 15.62 and also in anxiety 16.95, in social dysfunction 17.7 and in MDD subscale was 11.37. when we consider score of 14; as abnormality of subscale, percentage of each one were as follow: physical symptoms 63% anxiety 78%, social dysfunction 88% and MDD was 21%. And considering score of 23 as the cut of point, percentages were 9, 12, 11 and 2 respectively.

Conclusion: The result of this study emphasized on existence of psychological disorders in mothers of children with cancer. Psychologists must pay attention to these disorders to prevent from negative effect of child sickness on mother and conversely.



The Effect of Violet-Almond Oil on Fever in Children with Malignancy

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Introduction: Finding non-systemic antipyretic option in cancer patients who simultaneously receive several other drugs seems to be logical. This study was designed to evaluate complementary therapy with *Viola odorata* L. oil for fever control in febrile neutropenic children.

Methods and materials: In a randomized placebo controlled clinical trial, 41 febrile children were divided into two groups. Children in the active drug group received viola oil (20 drops) to be rubbed on the peripheral margin of the patient umbilicus. Primary outcome measure of the study was the mean axillary temperature in the 30, 60, and 240 minutes after the intervention.

Results: The mean temperature reduced significantly in the viola group after 30 minutes of administration ($p = 0.005$), while there was no significant change in the placebo group ($p = 1.00$). The number of patients who received paracetamol as the rescue treatment was significantly lower in the viola group than that in the placebo group (5 vs. 17, $p = 0.001$).

Conclusion: The **Results** of our study showed the safety and efficacy of complementary therapy with *Viola odorata* L. oil for fever control in febrile neutropenic children during hospital course.

Abbreviations

PM, Persian Medicine; GC-FID, Gas chromatography-flame ionization detection; IRCT, Iranian Registry of Clinical Trials; ANOVA, Analysis of variance

Keywords: *Viola odorata* L.; Sweet violet; Traditional Medicine, Skin absorption; Antipyretic effect; Fever



Coping Strategies Used by Parents of Children with Cancer

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Background: The assessment of family coping patterns and resources will provide a further basis for helping family's adaptation. This study was undertaken to assess the coping strategies used by parents of children with cancer in Aliasghar Cancer Hospital affiliated to Shiraz University of Medical Sciences.

Conclusion: Familiarity with coping strategies and the method to use them could balance the emotional, psychological and social consequences of parents who have a child with cancer.

Methods: Data collection was conducted based upon Family Crisis Oriented Personal Evaluation Scale (F-COPES) including social and spiritual support, reframing, seeking help and passive appraisal. Seventytwo parents including 28 couples, 8 single mothers and 8 single fathers participated in this study.

Results: The spiritual support ranked the highest and the social help, the lowest strategies used by the parents. Seeking help, reframing and passive appraisal were the remaining strategies. Statistically significant differences were found between the age of participants and reframing and seeking help strategies. A significant difference was also observed between the level of parent's education and reframing strategy but not between gender and coping strategies.

Keywords: Coping strategies; Parents; Children; Cancer.



Oral Glucose Solution for Analgesia in Infant Bone Marrow Aspiration

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Objective: Our objectives were to determine if a 50% dextrose solution combined with topical injection of Lidocaine in bone marrow aspiration procedure compared with topical injection of Lidocaine combined with water.

Method: This was a randomized placebo-controlled blinded clinical trial.

We included 35 infant patients under 12 months of age who were hospitalized for bone marrow aspiration in Shahid Madani hospital over a 12-month period.

The primary outcome was the percentage of the procedure time infants spent crying. Secondary outcomes were the percentage change in heart rate from baseline, the percentage of oxygen saturation, and the score from the modified behavioral pain scale.

Results: There were significant differences between the oral glucose and water groups among any of the pain-related measurements. The Dextrose group had significantly lower pain-related measurements ($P < .05$).

Conclusions: Concentrated glucose administered orally provides significant analgesia for infant bone marrow procedure and significantly reduced objective measurements of pain and physiologic stress in infant's undergoing bone marrow aspiration.

Key words: bone marrow aspiration, analgesia, pain



Comparison of Efficacy of *Zataria multiflora* and Chlorhexidine in Treatment of Post-Chemotherapy Oral Mucositis

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Introduction: Oral mucositis is a common side effect of anticancer therapy. The use of chemical mouthwashes has a variety of effects but, tendency to use of herbal plants is a new and cost benefit approach. Herbal medicine in Iran is important. Thymol has a positive effect on dental caries and some pathogenic bacteria in neutropenic patients.

Zataria multiflora is Iranian indigenous plant. It has thymol and carvacrol compounds. Thymol is one of the effective disinfectant for dental area.

Based on antibacterial effect of this Iranian plant we decided to apply this formulation for Oncology Children. Thyme Rinse Method: 5 grams of dried thyme dried in 100 ml of boiling water for 10 minutes, then this cooled solution can be used as a mouthwash. The mouthwash provided is free of alcohol and can be washed and disinfected 2-3 times a day with that mouth.

Material and Methods: *Zataria multiflora* solution and Chlorhexidine were used from the beginning of the chemotherapy and for two weeks. Mucositis, were scored by pediatric oncologist. Subjective evaluation was made by patients. *Zataria multiflora* solution was assessed in a non-blinded, matched clinical study. Each treatment arm consisted of 20 patients. (Summation: 40 patients).

Results: A statistically significant difference in mean severity of early chemotherapy. Treatment response by *Zataria multiflora* solution in mucositis is better than Chlorhexidine ($p < 0.001$ for all reactions).

Conclusions: The use of *Zataria multiflora* has significant effect on oral mucositis in patients under chemotherapy for tumors.

Keywords: chemotherapy, mucositis, *Zataria multiflora*



The Role of Massage Therapy in Chemotherapy-Induced Peripheral Neuropathy

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Introduction: Chemotherapy-induced peripheral neuropathy (CIPN) is a common adverse effect of chemotherapy agents, such as vinca alkaloids. Symptoms in limbs, manifested as pain, numbness, and/or tingling. CIPN can result in chemotherapy dose reduction or discontinuation, can interact with treatment. Also have long-term effects on quality of life. CIPN assessed by 1. physical examination 2. National Cancer Institute-Common Terminology Criteria for Adverse Events (NCI-CTCAE) grading scale. The aim of this study was to evaluate the effectiveness of therapeutic massage on pain and weakness in CIPN.

Material and Methods: The study involved 30 pediatric oncologic patients aged 2-10 years (mean age: 4 ± 2.54 years) treated for cancer at the oncology ward of Lorestan University of medical science in Iran. The patients were divided into two groups: one (18 persons) received physiotherapy, and the other group (12 persons) additionally received therapeutic massage. The effectiveness of rehabilitation was assessed with a symptom scale by peripheral neuropathy questionnaire (PNQ). Also, graded electric current was applied from the probe to a fingertip by Pain Vision®.

Results: Both groups did not differ significantly in terms of NDI and VAS scores at baseline (NDI: $p = 0.56$, VAS: $P = 0.231$) and after rehabilitation (NDI: $p = 0.203$; VAS: $P = 0.401$). The NDI questionnaire and VAS revealed a significant pain reduction ($p < 0.001$), and improved performance and function ($p < 0.001$) after rehabilitation in both groups.

Conclusions: Therapeutic massage increases force of motion on physical therapy in CIPN and decreases pain in pediatric oncologic patients.



How to Teach Children's Oncology Nurses in Developing Countries? Successful Experience of a Center in Iran

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Introduction: New teaching methods are essential in the promotion of competence in oncology nurses. Measuring clinical skill by standard check lists and paper exams, which is one of the most essential skills, is the foundation of nursing care and clinical decision-making, and nurses should be trained to master this skill. This study aimed to determine the impact of recommended teaching method on oncology nurses. Unfortunately, In Iran we still do not have a Master's degree in nursing in the field of cancer nursing in the country, but efforts have been made in the Ministry of Health to take steps in this direction, but the implementation of this field has not yet been achieved, while increasing the information provided by the medical staff.

Materials and Methods: The purpose of this study was to evaluate the oncology nurses ability and knowledge to detect changes in clinical score during 3 consecutive years. Clinical score and knowledge from 30 pediatric oncology nurses were drawn end of years and analyzed 3 annually points. Data were compared using repeated measures analysis of variance and Pearson's test for linear correlation.

Results: We found significant changes for 3 years after education program. During 3 years nurse's points were increased significantly.

Conclusions: Our educational program of oncology nurses, using simulators is recommended as an effective teaching strategy to facilitate learning and for the development of students' knowledge.

Keywords: Blood pressure-nursing, students-patient simulation, nursing faculty practices



Chemotherapy and Radiotherapy Patients - Dental Care Guideline

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Background: Childhood cancer is the second most common cause of death in children in the Iran. This review of contemporary literature highlights the necessity for interprofessional care to achieve the best dental outcomes for this patient population during cancer treatment.

Methods: A literature search at PubMed identified research and review articles about oral and dental complications in children during cancer treatment. Finally, clinical recommendations from best evidence about management of oral and gastrointestinal mucositis were included. The literature search was limited to articles published in the English language.

Results: Children with a new diagnosis of cancer should have dental care provided by a pediatric dentist to mitigate the oral complications from cancer treatment as well as to avoid dental infections during immunosuppressed states.

Conclusion: This guideline can provide the best quality for oncologic patients during treatment.

Keywords: Mocusitis, chemotherapy, cancer



Iranian Protocol for Treatment of Mucositis in Paediatric Oncology Patients

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Oral impediments are pervasive among childhood oncology patients; ranging from 30 to 100% of patients. These oral issues can be both acute and severe, no doubt require supportive therapy for the total resolution. The most frontline obstacle is the delay in chemotherapy process or limitation in the future administered chemotherapy regimes. The other confronting issues is increased hospital admissions, increased health expenditures, decrease quality of life and consequently add further burden to the patients, families and clinicians. There are numerous reports describing acute oral complications from cancer therapy resulting in significant morbidity and delays in overall therapy. Noteworthy to mention During periods of neutropenia caused from chemotherapy, the succeeding three objectives are recommended by the AAPD (2013):

1. To maintain optimal oral health
2. To manage any oral side effects that may develop as Mucositis
3. To reinforce the patient and parents' education regarding the importance of optimal oral care

In spite of high prevalence, there have been few studies published on reducing the incidence and severity of oral mucositis in children. Oral mucositis remains an unresolved clinical problem for oncological teams treating pediatric patients with chemotherapy.

Oral mucositis usually lasts for 3 weeks, starting at 3–5 days and pointing at 7–14 days after chemotherapy.

The most likely mechanisms entail complex biological events mediated by a number of inflammatory cytokines, the direct effect of the chemotherapeutic drug or irradiation on the basal epithelium and connective tissue, and the oral microbial environment.

As a matter of fact the frequency and consistency of oral care are significant factor in reducing oral mucosal damage associated with cancer treatment than the particular agent used.



Existential Issues in Children palliative Care

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Background: Existential and spiritual concerns in relation to palliative end-of-life care have received increasing attention over the past decade. Existential distress is often present in terminal illness and may be associated with syndromes such as depression, anxiety, and desire for hastened death. To review the literature specifically related to existential suffering in palliative care in terms of the significance of existential suffering in end-of-life, care, definitions, conceptual frameworks, and interventions.

Method: A systematic approach was undertaken with the aim of identifying emerging themes in the literature. Databases using CINAHL, MEDLINE and ProQuest and the search engine of Google Scholar were searched under the Key words existential Suffering, children, palliative and end of life care, nurse, physician (1900-2019).

Discussion: Existential suffering is associated with a number of clinical issues, including reduced quality of life, increased anxiety and depression, suicidal ideation, and desire for hastened death. Medical team's feelings of powerlessness in facing death and dying touched them deeply as well as feelings of insufficiency and uncertainty about how to respond and relate to these situations.

Medical team can feel better equipped to deal with a dying patient's emotional experience by considering some relevant contributions of existential philosophers.

Result: This study points out that health care professionals need to be aware of their own feelings of abandonment in exposed situations such as patients' feelings of existential issues and palliative care. That there are some health care team members that express a desire to die and this makes them feel uncomfortable and difficult to confront these occurrences and it is therefore important to listen to patients' stories, regardless of care organization, in order to gain access to patients' inner existential needs. We need caring about myself with different counseling and self care.

Key words: Existential suffering, palliative care, Death, Children, Medical team



Level of Education Provided by Nurses to the Parents of Children with Chemotherapy-Induced Mucositis

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Introduction: Mucositis is a side effect of chemotherapy, which affects patients' quality of life. Nurses are the main care providers for cancer patients. Choosing a suitable care strategy is a challenge faced by oncology nurses. Educating patients about management of cancer therapy complications Results in optimal use of healthcare services and improves quality of life of patients. The aim of this study was to evaluate level of health education provided by nurses to the parents of children with chemotherapy-induced mucositis.

Materials and Methods: This descriptive study was conducted in 2016 on 60 children (mean age 86.7 ± 39.16 months) with chemotherapy-induced mucositis at the Children's Hospital of Tabriz, Iran. Demographic information and health education offered in conjunction with the mucositis clinical records were obtained through interviews with the parents. The data were analyzed in SPSS 12, using chi-square test and t-test.

Results: Only 3.3% of the subjects received appropriate training in relation to mucositis, whereas 56.6% received no training and 40% received partial training.

Conclusions: Our Results suggest that the level of training provided for children with chemotherapy-induced mucositis is not satisfactory. Therefore, nursing authorities and planners should prepare the nursing personnel to provide care and special support to these patients.

Keywords: Education, Nursing, Mucositis, Cancer



Challenges and Practical Solutions for Pain Management Nursing in Pediatric Wards

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Background: Pain management is one of the most important indicators for nursing care quality. Pain management is still ineffective and inadequate in pediatric wards. Therefore, in this study, we aimed to evaluate pain management nursing in pediatric wards and suggest practical solutions with regard to pediatric pain control.

Materials and Methods: In this review article, Iranian (i.e., MagIran, Iran Medex, Irandoc, and SID) and international (i.e., Medline, Google Scholar, Google, and Science Direct) databases were searched, using the following Keywords and their Farsi equivalents: "pain management", "pediatric", "nurse", "barriers", and "hospital". Among 4064 studies, 51 relevant articles, published during 1994-2015, were retrieved and reviewed in this study.

Findings: In total, eight challenging areas were recognized in pediatric pain management, which are as follows: limited theoretical knowledge and insufficient skills of nursing staff, nurses' personal beliefs, organizational barriers, characteristics of parents and children, lack of professional interaction, ambiguous role of nurses in pain management, lack of parental involvement or children's participation in pain management, and scarcity of local models for pain management.

Conclusion: By identifying nursing challenges and proposing practical solutions (e.g., modifications in organizational structure), we hope to take a major step towards removing barriers against pediatric pain management.

Key words: Pain Management, Children, Hospital, Nurse, Challenge



Nurses' Strategies for Managing Pain in Pediatric Units: A Qualitative Study

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Background: Pain management is one of the main clinical challenges that health care jobs encounter with it. Since the nurses play a pivotal role in providing the pain management; therefore, the aim of this study was to determine nurses' strategies for managing pain in pediatric units.

Methods: Data were collected through deep and unstructured interview with 16 nurses of educational and therapeutic center in Amirkola Super Specialty Children's Hospital of Babol city during 2015-2016. In this purposeful sampling, all interviews were recorded and transcribed verbatim. Data were analyzed using qualitative content analysis in the form of conventional.

Results: The data analysis showed that the theme of clinical judgment of nurses were underdeveloped. The contents included seven sub-classes such as "incomplete investigation of the presence and severity of real pain", "priority to pain pharmacological actions", "inadequate understanding of nurse to the time and lack of analgesics", "nurse's inadequate attention to the conditions of the use of non-pharmacological and pharmacological interventions", "inappropriate assignment of non-pharmacological pain to the mother", "incomplete evaluation and record of pain relief", and "superficial and transient pain relief".

Conclusions: Nurses use the strategy of underdeveloped clinical judgment to manage pain in pediatric units. Due to this determined fact, it is necessary to design a practical model for improving the clinical judgment of nurses in pediatric pain management.

Keywords: Pain Management, Nurses' Strategies, Pediatric, Qualitative Research



The Effect of Spiritual Intervention on Family Psychological Support of Children with Cancer

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Introduction and goal: Cancer is the cause of four percent of children's deaths. The effect of childhood cancer on his or her family is not less than the effects of the malignancy on the child. So the Results show that families with childhood with cancer have psychological distress. Therefore, offering spiritual-style interventions for these families is important. Spirituality means communication with supra-human and a force that empowers people to understand the meaning of life in the families of children with cancer and acts as a factor in reducing psychological distress.

Procedure: This overview of the databases Pubmed, Science direct, Scopus, Google scholar In the 2012-2019 period with Key words, Psychological support, Cancer, Children, Supportive care, Spiritual were searched. Finally, according to criteria such as the availability of the full text of the article and the relevance, 20 articles selected.

Results: The Results of the studies showed that families with a child with cancer have negative psychological outcomes due to their child's disease. And spirituality is an effective way to reduce these consequences.

Discussion and Conclusion: Given the undeniable importance of spirituality in the psychological support of families with a child with cancer. It is recommended that managers and nurses working in the children's oncology department provide the necessary spiritual support to reduce psychological distress.

Key words: Spirituality, psychological support, family with child with cancer



The Process of Confrontation with Paediatric Patients by Cancer Diagnosis and Designing a Care Model

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Introduction and Purpose: Caring for cancer patients is extremely hard and when the sick person is child, degree of difficulty is multiplied. In addition, when the parents of children face the cancer diagnosis of their child, they experience emotional and mental distress. However, their correct behaviour will create fewer problems. The Patterns of Care (POC) can facilitate this process. Therefore, the purpose of this study is to identify process of confrontation and designing a care model.

Methodology: This study is a report with qualitative approach, which was used to collect data from the clinical narratives of the experienced nurses in the paediatric department of Urmia. 30 clinical narratives were extracted based on qualitative content analysis method, coding, and classification. Data analysis was performed by a continuous comparison method and after identifying the main concepts of this process, an appropriate pattern of care was presented by Walker- Avant theory.

Findings: The four main contents was discovered: "life threatening," "exploration of support and hope for survival," "understanding the risks of life," "susceptibility to serious illness/cancer". The data indicates that the participants try to survive and accomplish the necessary efforts in this regard. Nurses play an important role in promoting hope and morale of patients.

Conclusion: Although caring for cancerous children is emotionally painful for nurses, but they can provide solace and life expectancy in children and their families by recognizing the process of confrontation with cancerous children and their caring model.

Keywords: Cancer, children, Care Model, Nursing.



Effect of Distraction on Children's Behavioral Responses to Pain during IV Catheter Insertion in 3-6 Age Children Under Chemotherapy

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Background: Performing invasive procedures such as IV injections for chemotherapy are inevitable and stressful events in children suffering from cancer. This study aimed to examine the effect of distraction during intravenous catheter insertion on pain related behavioral responses of children suffering from cancer.

Methods: A quasi experimental study was conducted in pediatric hospital in Tabriz, Iran in 2016. Sixty children aged 3-6 with cancer were selected through a simple randomized sampling method. All included children had earlier experiences of needle insertions. Exclusion criteria were fever $>38^{\circ}$, nausea, need of pharmacological sedation. The children were allocated into two equal intervention and control groups. Data were collected using, demographic questionnaire and the FLACC scale. Distraction technique was applied in the intervention group during IV insertion. The researcher marked the FLACC during the procedure.

Results: Data analysis with chi-square showed demographic variables were similar in two groups $34(p>0/05)$. In the intervention group, none of the children experienced severe pain during IV catheter insertion; and 47/3% of the children had mild pain and 13% had moderate pain. In the control group, 63/3% of children had mild pain, 7% moderate pain and 13% of them experienced severe pain during. There was a significant difference in perceived pain between the children of two groups ($P<0.001$).



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Conclusion: According to the research findings, distraction with bubble maker resulted in decreasing the intensity of pain in children aged 3- 6 years under chemotherapy. This method can be useful in reliving the pain in preschool children undergoing IV insertion.

Keywords: Pain, IV insertion, Distraction, Chemotherapy



The Effect of Aqueous Extract of Sage on Prevention of Pain Due to Stomatitis in Children with Leukemia under Chemotherapy

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Introduction: prevention of stomatitis can significantly reduce the pain intensity of Pediatric under chemotherapy. The aim of this study was to Investigate The effect of aqueous extract of sage on prevention of pain Intensity due to stomatitis in children with leukemia under chemotherapy Hamadan city west of Iran.

Materials and Methods: In this double-blind clinical study, samples including 60 children aged 6 to 14 years old who were selected by random sampling and divided into two groups, one using the aqueous extract of the sage (intervention n=30) and using routine cocktail (control n=30). Intervention group gargled 3 drops of extract diluted in 2 cc of water, 3 times a day for 2 weeks and hold it for one minute in the mouth. the control group gargled 2 cc of cocktail solution for 2 weeks 3 times a day. The mouth of all patients before and after the intervention for 2 week was checked and assessed the intensity of pain and stomatitis. Data were analyzed by SPSS software version 16 and Fisher and Chi-square tests.

Results: Comparison the intensity of pain in the intervention and control group before the intervention was not significant, but after the intervention significant ($P < 0.001$). compared the severity of stomatitis between the control and test groups after the intervention showed that between the two groups was statistically significant ($P < 0.001$).

Conclusion: Based on the findings of the present study, the aqueous extract of the sage has a significant effect on relief of stomatitis' pain in children undergoing chemotherapy.

Key words: aqueous extract of the sage, Stomatitis, Chemotherapy, Children



Survival Outcome of Childhood Acute Lymphoblastic Leukemia in Dr. Sheikh Pediatric Hospital (Northeast of Iran) 2006-2012

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Background: Acute lymphoblastic Leukemia (ALL), as the most common childhood malignancy, accounts for one fourth of pediatric malignancies. Limited data are available on the therapeutic outcome of ALL patients in our country. The aim of the present study was to evaluate Survival and treatment outcome of childhood acute lymphoblastic leukemia in Dr. Sheikh pediatric hospital (northeast of Iran) between 2006 and 2012.

Method: In this survival analysis, 387 children below 15 years, diagnosed with ALL between 2006 and 2012 in Dr. Sheikh pediatric hospital of Mashhad, Iran, were enrolled in the study. Patient's demographic, clinical and laboratory data were recorded and subsequently analyzed by SPSS 19 statistical software.

Results: Among 387 ALL patients, 226 (58.4%) were male participant. Relapse was occurred in 8% and death in 21.2% of the patients. 23 cases (5.9%) had T-Cell phenotype and 364 cases (94.1%) had B-Cell ALL. 144 cases (37.2%) of the patients were high risk according to NCI risk criteria. 5 year overall survival was 74.1% and 5 year event free survival was 69.3%. single variable analysis based on cox regression encountered age at diagnosis, WBC count, LDH and Hb level, NCI risk group, tumor lysis syndrome, relapse type and CNS involvement as factors associated with event free survival. Multiple variable analysis confirmed LDH level and tumor lysis syndrome as significant variables.

Conclusion: Event free survival was significantly different among age and NCI risk groups.

Keywords: event free survival, overall survival, Acute Lymphoblastic Leukemia (ALL) mortality



Supportive Care Needs in Adolescent Cancer Survivors: Content Analysis

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Introduction: Health care is one the important strategies that can help to tolerate unwanted changes and problems in cancer survivors. Otherwise identifying patients' health care needs is one of the primary steps of nursing process to plane and implement nursing interventions. The focus of this study is to explore adolescent cancer survivors' health care needs.

Methods: Qualitative content analysis approach and face to face semi-structured interviews was conducted for data collections. Purposeful sampling was adopted to select 49 participants from hospitals, clinics and cancer care centers. All of interviews were recorded and then were transcribed verbatim and typed. Graneheim and Lundman steps were used for data analysis. To manage the data, MAXQDA10 software was used.

Results: Ten subcategories and four categories were extracted from data analysis: "Empathetic care", "Information about survival period", "Instrumental support" and "Cooperation in care". These four categories created a major theme "supportive health care" as a main need.



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Conclusion: This study highlights supports should be developed by family and health care providers to meet survivors' needs. First they should identify survivors' strength and weakness, then provide effective supports such as giving appropriate information, enabling survivors to access supportive network in society and improving their confidence with psychosocial support, so that empowerment survivors in achieving health care autonomy.

Keywords: adolescent, cancer survivor, health care, need, support.



The Importance of Palliative Care in Pain Management of Children with Cancer

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Introduction and goal: Nursing care for children with cancer is one of the challenges of pediatric nursing. One of the most severe signs of cancer is a pain. Some patients are at risk of inadequate and ineffective control of pain. Palliative care as holistic care is a necessary and human need for cancer patients, which is a fundamental part of relieving pain.

Method: This study was conducted as a review. A systematic search was done by databases Pubmed, Science Direct, Scopus, Google scholar in the years 2012-2019 with Keywords: Pain control, Cancer, Children, Palliative & Supportive Care. Finally, according to criteria such as the availability of the full text of the article and the relevance, 15 articles selected.

Results: The Results of the articles in this field showed that the pain caused by cancer affects the whole life of the person and reduces the quality of her/his life. On the other hand, one of the most important goals in providing Palliative care is to reduce the pain associated with cancer.

Conclusion: The importance of palliative care in reducing pain associated with cancer is undeniable. Therefore, due to the lack of palliative care centers for children, it is recommended that managers provide the conditions and facilities for providing this care for children to reduce the effects and consequences of cancer especial pain.

Keywords: Palliative care, pain management, child with cancer



The Effect of Music Therapy on Nausea and Vomiting Caused by Chemotherapy in Children with Cancer

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Introduction: One of the most common complications of chemotherapy is nausea and vomiting. Many therapeutic and non-therapeutic methods can be used to control it. Music Therapy is a non-pharmacological and professional approach that can be used as a supportive measure in cancer patients and can also be used as a program for rehabilitation in the physical and emotional health of cancer patients. The purpose of this review is to investigate the effect of music therapy on chemotherapy-induced nausea and vomiting in children with cancer.

Method: Data from this research is the result of a search in databases such as SID, PubMed, Elsevier, and Science Direct Scholar from 2005 to 2019 using the Keywords of nausea and vomiting, chemotherapy, children, music therapy, cancer.

Results: The findings of this study showed that music therapy can be used as a technique to improve the mood of the patients, including reducing stress, pain and anxiety, and also improving the duration and improvement of hospitalization time. To be regarding the severity of nausea and vomiting caused by chemotherapy, the severity of nausea and vomiting in patients with music therapy significantly decreased.

Conclusion: Considering the importance of the Results, nurses can use non-prescriptive methods such as music therapies to reduce the complications of chemotherapy, especially nausea and vomiting. In order to provide nurses with better care, we can use educational classes as well as educational pamphlets.

Key words: nausea and vomiting, music therapy, chemotherapy, cancer, child



Investigating the Effect of Palmiformin on Prevention of Oral Mucositis in Children with Cancer

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Introduction: Oral mucositis is one of the most common problems in cancer patients undergoing chemotherapy, which severely disrupts the eating of patients, which is considered as one of the most disabling side effects, which is approximately 52% to 81% of children They are being treated for this condition. Therefore, a good solution should be found to control this condition. This review was conducted with the aim of influencing oral candidiasis in children with cancer.

Method: Data from this research is the result of searching in databases such as SID, PubMed, Elsevier, and Science Direct Scholar from 2005 to 2019 using the Keywords of poliomyelin, chemotherapy, children, oral mucositis, cancer.

Results: The Results of this study showed that the use of poliomyelin decreases the rate of oral chemokine mucositis in children with cancer and has a better performance than chlorhexidine mouthwash, hypothermia, and laser in reducing mucositis.

Conclusion: According to the findings, the rate of mucositis was significantly reduced in patients with cancer.

Keyword: polymorphine, chemotherapy, cancer, child



Physical Therapy in Patients with Cancer

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The word “cancer” can provoke an emotional reaction that includes fear, anxiety and sadness, however, the majority of cancer survivors can expect to pass the 5-year mark. Pediatric cancers affect over ten thousand children in the United States each year. Cancer treatment includes chemotherapy, radiotherapy, and surgery, which are being continuously developed and thus increase survival of patients with each cancer diagnosis. chemotherapeutic agents have been the backbone treatment for pediatric cancers. Unfortunately, a number of the chemotherapy medications have potential side effects, including chemotherapy-induced peripheral neuropathy (CIPN).

Children who received chemotherapy treatment had significantly slower velocities, decreased cadence and shorter step lengths when compared to controls. Many cancer patients also have physical dysfunction and experience deficits in muscle strength, flexibility, and endurance as a result of chemotherapy, radiation therapy, and surgery.

Physical therapy is a comprehensive, multidisciplinary approach to the evaluation and treatment of patients diagnosed with various forms of cancer including preoperative, postoperative, acute care, nursing home, and inpatient and outpatient rehabilitation, and it can improve functional problems such as weakness, soft tissue tightness, joint stiffness, fatigue, and swelling or edema.

Physical therapy-led exercise is clinically effective and can help cancer patients improve their Quality of lives (QOL).

Physical therapy has an important role in increasing physical function of cancer patients, cancer survivors, and children with cancer. In the future, physical therapy may be progressively needed for management of cancer patients.



The Effectiveness of Positive Psychotherapy on Decreasing Death Anxiety and Depression in Children with Cancer and Stress Adaptation in their Families

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Introduction: One of the common problems of cancer patients is psychological factors. If there is no prior preparation for care, psychological, physical, personal, social and economic complications can be created for patients. The concept of stress adaptation is a process leading to attempts to use sources for solving stressful situations. Therefore, the use of appropriate adaptive skills in caregivers is important. Thus, this study aims to review the effectiveness of positivist psychotherapy on decreasing the death anxiety and depression in children with cancer and stress adaptation in their families.

Methods: This review study was conducted based on a search in databases and using clinical teaching Keywords- teaching and learning new methods in nursing. A total of 30 articles were extracted and after studying and analyzing 19 related articles were selected.

Results: Comparing the mean of depression, stress, and death anxiety variables in the two groups showed that there is a significant difference between the two groups of positivist and control psychotherapy. The best definition of stress adaptation is the frameworks of the process of stress adaptation in caregivers.

Conclusion: Effective psychological interventions are necessary to decrease the depression in these patients. It is recommended that anesthesia practitioners receive psychiatric treatment to decrease depression and death anxiety in patients with cancer. Nursing interventions to decrease stress, applying adaptive skills, and effective coping skills in caregivers are essential.

Keywords: Psychotherapy, Positivist, Death Anxiety, Depression,



Oral Care Protocol Interventions To Prevent Chemotherapy-induced Oral Mucositis In Pediatric Cancer Patients

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Introduction and Aim: Oral mucositis (OM) is a side effect of intensive chemotherapy and radiation. The resulting oral ulcerative lesions can cause significant pain, dysphagia, alteration in nutritional status and increased risk for localized infections that could disseminate systemically. The purpose of this study is investigating oral care protocol interventions to prevent chemotherapy-induced oral mucositis in pediatric cancer patients.

Methods: this study is a systematic review article by surveying articles of databases and credible scientific websites include Scimedirect, Pubmed, Scopus and with Keywords "oral care, pediatric, mucositis, cancer, chemotherapy" was conducted since 2019.

Results: Twenty articles were systematically reviewed, 3 studies focused on the pediatric oncology population, and the remaining 17 studies focused on other chronic illnesses. A variety of interventions to increase oral medication adherence in children were identified, including pill swallowing, technology, education-based intervention, psychosocial support-based intervention, and combination intervention. Most interventions were shown to have some benefit in pediatrics, most in the non-oncology setting. The overall synthesis of the literature indicates that nonadherence to oral medications is a prevalent problem in pediatrics, and much work is needed to address this problem, particularly in pediatric oncology.



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Conclusion:The Results of this study support the preventive use of oral care protocols in pediatric patients undergoing chemotherapy for cancer treatment.

Keywords:Oral care, pediatric, mucositis, cancer, chemotherapy



Perceptions of Parents of Children with Cancer about Factors Influencing their Adaptation: Qualitative Study

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Background and Aim: Among the chronic diseases of childhood, the prevalence of cancer is high, and it imposes a high level of mental health and well-being on children. This is a conventional content analysis that aims to identify the emotions and adaptive mechanisms of parents of children with cancer.

Method: This study is a qualitative research in which twelve parents (8 mothers and 4 fathers) were selected through purposive sampling technique. Data collection was deep interview with semi structural questions. All interviews were first recorded then transcribed. Finally data was analyzed using constant comparative technique through conventional content analysis

Findings: Data analysis illustrated three main themes with nine subcategories. The main themes are: Ineffective Adaptation ", Individual-Social Factors "and"Therapeutic Factors ".

Conclusion: The psychological effects on the parents of children with cancer are greater than physical effects. Therefore, identifying emotions and the type of parental adaptability and helping to cope effectively is more important.

Keywords: child, cancer, parents, adaptation, qualitative research



Care Needs in Childhood Cancer Survivor

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Introduction: Supportive care is the provision of essential and necessary services for living with cancer in order to meet the needs of patients at all stages of the disease. On the other hand provide an appropriate level of supportive care for patients will not happen without a good understanding of the needs. So, since a study in our country specifically did not address the needs of cancer survivors and its factors, the present study aimed to investigate the need for supportive care in cancer survivors.

Methods: This descriptive correlational study was conducted in children and Shahidghazi Tabatabaee Hospitals and specialty oncology clinic in 2018. The sample consisted of 150 survived children who were selected by convenience sampling method. The survival support needs of the survivors were assessed using the SCNS-SF34 questionnaire, which includes five dimensions include physical and daily activity, psychological, health informational, supportive and sexual care.

Results: The Results showed that cancer survivors had high unmet needs in all dimensions and their most unmet needs were in the informational (58.6%) and psychological (47.3%) dimensions. The most cancer survivors met need is in the supportive care dimension (41.9%). Factors affecting the increase in need in the psychological dimension were female sex, fatigue, proper inactivity and depression ($P < 0.05$). In the dimension of information, people living in the city needed more information ($P < 0.05$).

Conclusion: The high level of unsatisfied survivors in all aspects indicates the need for consistent planning by managers to deliver services, particularly in the psychological and informational dimension, in order to meet the needs of survivors of cancer.

Keywords: cancer survivors, children, need, supportive care.



Relationship between Resilience and Spiritual Intelligence among Mothers of Children with Cancer

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Materials and Methods: This was a descriptive analytical cross-sectional study which was conducted on 115 eligible mothers of children with cancer who were admitted to an oncology department in Yazd from July 2016 to June 2017. The data were collected using the checklist of demographic characteristics, Connor-Davidson resilience scale (CD-RISC), and Spiritual Intelligence Self-Report Inventory (SISRI-24). The data were analyzed using descriptive statistics a long with Pearson and Spearman correlation coefficient.

Results: The findings revealed that the mean scores of the resilience and spiritual intelligence were 66.47 and 62.98, respectively. There was a statistically significant positive relationships between spiritual intelligence and resilience ($r=0.47$, $P=0.001$), and between spiritual intelligence subscales and resilience. The statistically positive significant relationships were also found between the mothers' age ($r=0.25$, $P=0.002$) and the level of education ($r=0.4$, $P=0.001$) with the resilience.

Conclusion: Given the positive significant relationship between spiritual intelligence and resilience in the current study, it seems important that healthcare authorities take account of the strategies that enhance the spiritual intelligence elements in the educational curricula and future plans, and subsequently enhance resilience in the mothers of children with cancer.

Keywords: Resilience, spiritual intelligence, mothers, child, cancer



Policy Making Palliative Home Based Care in Children with Chronic Disease: A Comparative Study

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Background: The growing prevalence of chronic diseases in children has increased their need for palliative care. Home care services constitute one of the best models for providing palliative care to patients and their families. We aimed to compare pediatric palliative care and home care policy making in Iran and in the selected countries.

Method: This comparative study was conducted based on the classifications of palliative care for children and using databases such as Scopus, Science Direct and Medline/PubMed, websites affiliated with communities and associated with palliative care and home care services and according to the World Health Organization's Public Health Road Map. The selected countries consist of England, Canada, Australia and South Africa, where home care services are provided for children in addition to palliative care.

Results: Selected countries were evaluated the concept of palliative care in that area of health policies for home care, the implementation and special program for children. From the point of view of policy-making in the selected countries, the home care plan is introduced as a way of extending public health care and refers to the shift in the care of the hospital to the community. In Iran, the Sixth Development Plan has focused on home care with the collaboration of the nursing group. In the countries under review, the concept of children palliative care has been developed and there are plans for childhood palliative care, especially at home. However, in Iran it isn't a special program for children. Based on the level of palliative care, is building capacity for providing palliative care for children.

Conclusion: The health system of Iran, with the help of successful countries in the fields of home care and palliative care, is designed to provide a special program for children with chronic diseases, and with appropriate policies to reduce the burden of health care associated with these diseases.

Key words: palliative care, children, home care, health policy



Drug Policies in Children with Life-Threatening Condition at Home

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Background: with increasing the number of children with chronic and life-threatening conditions, the need for access to medicines and drug policies to facilitate care services, especially at home, is even more important. This study aimed to explain stakeholders' perceptions of drug policies for children with life-threatening conditions.

Methods: Qualitative study was conducted using purposeful sampling from 17 mothers of children with life threatening conditions (cancer, organ failure and severe cerebral palsy), 13 specialists, health care providers and policy makers on related drug issues in palliative care at home and drug problems in these children. Data were analyzed using qualitative directed content analysis.

Results: The drug policies in these children consisted of 3 main categories and 6 sub categories.

- 1) **Supportive and regulatory requirements for medicines** include two dimensions of developing indicators for monitoring home-based drug therapy and supportive health insurance policies for children with chronic diseases
- 2) **The need to relieve child pain** in two dimensions of phobias in the use of opioid in children and the need for control of child pain
- 3) **Addressing the issues of prescribing of medication** included two dimensions of the need to specify the order of drug therapy at home and the difficulty of using the medicine in children.

Conclusion: Facilitating timely child discharge and home-based care transfers, requires access to medications and needs policy and identification of drug issues and appropriate insurance support. Improving the awareness of care providers and the family are



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important from the ethical and legal point of the need to relieve the children's pain and resolve drug-related issues.



Search Keyword Congress Supportive Therapies in Pediatric Malignancies by Users Based on Google Routing Pattern in Iran and US

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Introduction: Most Internet users frequently use search engines and subject directories as tools for searching and accessing information. Today, search engines provide a variety of services to provide statistics on how much use, behavior, and recognition of user descriptions. These statistics, in addition to pointing out to website administrators in optimizing user searches (SEO), show the gap between specific users (subject specialists) and general users from the point of view and how to deal with specific topics they give. The purpose of this study was to investigate the Keywords searched by Congress for supportive therapies in pediatric malignancies by users based on Google's routing pattern in Iran and the United States.

Methods and Materials: In this article, using science-based and content-based analysis to investigate Keywords (Cancer infection, Cancer pain, Cancer blood, Cancer pediatricians, Cancer ethics) Congress of Supportive Therapies in Pediatric Malignancies Google search engine in Iran and the US in the last year. The research tool in this study was the Google Trends service. The service provides all the statistics related to searches based on Keywords used by users by country and region.

Conclusions: The Results showed that in the last 12 months, the most searched and concerned users were cancer blood Keywords, cancer pain, cancer infection, respectively, and statistics on childhood cancer and cancer ethics were scarce. Similar to the above conditions in the US, respectively, Cancer Kids, Cancer Infection, Cancer Blood, Cancer Pain. The search interest in both Iran and the US was approximately similar at the time stated, from the Iranian and American users most concerned about leukemia and cancer pain, as well as a significant difference between the number and extent of searches for these Keywords. Also, more users have used the term (signs and causes) for these Keywords, indicating that they are concerned about the occurrence and curiosity about the disease. In this research, users' concerns were also extracted by region and province, which can be expected considering the geographical situation.



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Keywords: Cancer Infection, Cancer Pain, Cancer Blood, Cancer Pediatrics, Cancer Ethics, Congress, Urmia, Google Routing Model



Assessment of Uncertainty in Mothers of Children with Cancer and Factors Affecting It

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Background & Objectives: Childhood cancers in Iran are the second leading cause of death in children under 14 years of age. Diagnosis and treatment of childhood cancers lead to psychological challenges that often harm parental mental health. And they experience a high level of uncertainty. Therefore, this study was designed and conducted to investigate the uncertainty and its influencing factors in mothers of children with cancer.

Methods: This cross-sectional study was performed on 187 mothers who had cancer children referred to a pediatric oncology ward of Moteheri hospital during the past 5 years.

Initially, the mothers were contacted and those who were willing to participate in the study completed an uncertainty questionnaire consisting of 31 questions.

Results: The Results showed that the uncertainty score was inversely correlated with maternal age, marital age, diagnosis of child age, child age, and was positively and significantly correlated with a number of children and birth order ($p < 0.05$). Also, the uncertainty scores according to a family history of cancer, maternal education, income status, father's education, father's occupation, child's disease status, type of cancer were significantly different ($p < 0.05$). The multivariate analysis show that the variables of



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children birth order, s, chronic maternal illness, income and family history of cancer were significantly associated with maternal uncertainty.

Conclusion: Maternal uncertainty about the status of the child's illness seems to be an important factor that demographic factors and the condition of the children disease can be good predictors and should be taken into account to better manage the child's mental health and subsequent illness. Previous studies have also shown the importance of parental uncertainty in the status of the child's illness and treatment.

Keywords: uncertainty, Maternal, Childhood cancers, pediatric oncology



Evaluation of Depression and Its Affecting Factors in Couples Who Have Children with Cancer

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Background & Objectives: Diagnosis and treatment of childhood cancers lead to psychological challenges that often harm parental mental health. How parents cope with their child's cancer disease is one of the most important factors in improving the cancer treatment process. The present study was designed and conducted to investigate depression in parents of children with cancer.

Methods:

This cross-sectional study was performed on 71 parents who had cancer children referred to a pediatric oncology ward of Moteheri hospital during the past 5 years. Initially, the parents were contacted and those who were willing to participate in the study completed a Depression Scale for Epidemiological Studies questionnaire consisting of 20 questions.

Results: The Results showed that 75.7% of mothers and 52.1% of fathers had depression and there was a significant relationship between fathers and mothers depression ($p < 0.05$). Depression in mothers was significantly correlated with the age of marriage. In fathers, fathers' age, ethnicity, parental education, number of children, birth order, complications, and disease status were significantly correlated and with multivariate analysis father depression was a significant relationship with the number of children,



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birth order, child age, the status of the child's illness, referral to psychologist and place of residence.

Conclusion: Depression is common among parents, with similar Results reported in other studies. Depression in fathers is influenced by several factors when considering the high prevalence of depression in mothers seems to better manage the psychological aspects of the disease and both parents must be independently evaluated and the necessary actions to be taken.

Keywords: Depression, Parents, Childhood Cancers, Pediatric Oncology



Nursing evidences on Cancer Pain Management in Children

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Objective: To report nursing evidence regarding pain assessment and management for children and adolescents receiving treatment for cancer.

Method: This is a review study (Published research and clinical guidelines), with a survey of articles in the PubMed and google scholars databases, published between 2005 and 2019, with 30 articles being selected for analysis and discussion.

Conclusion: Children and adolescents experience multiple sources of pain across the cancer therapy. They require developmentally relevant approaches when assessing and managing pain. This review suggests that consideration of the developmental stage and age of the child are essential in both pain assessment and pain management. Pediatric oncology nurses play an important and key role in developmentally appropriate pain assessment, identification of potential strategies to manage pain, and delivery of pharmacologic and nonpharmacologic therapies.

Keywords: Children, Adolescents, Cancer, Pain, Management



Psychosocial Care in Pediatric Oncology: Nursing Professionals' Perceptions

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Background: Children with cancer and their families have psychosocial support need. Nursing professionals in pediatric oncology are in a position to identify and help manage these. However, little is known about their perceptions of psychosocial issues and interventions.

Objective: The purpose of this study was to investigate nurses' perceptions of psychosocial issues in pediatric oncology including their awareness of the psychosocial impact of childhood cancer on families and their knowledge and views of psychosocial interventions.

Methods: A phenomenological approach was taken whereby semi structured interviews were conducted with a purposive sample of 10 nurses.

Results: Findings showed that despite a lack of formal training in psychosocial issues, professionals identified a number of psychosocial issues associated with childhood cancer, including effects for family members. In addition, findings illustrated the psychosocial roles that they frequently adopt in relation to the identification, treatment and referral of psychosocial issues. Finally, nurses recognized the value of formal intervention, reporting benefits for children, families and themselves.

Conclusion: These findings give a preliminary insight into nurses' perceptions and awareness of the psychosocial issues experienced by children with cancer and their families and their knowledge of psychosocial interventions. They highlight ways to enhance the delivery of care in pediatric oncology. Specifically, they suggest the need for more formal training on psychosocial issues for nursing professionals.

Key words Psychosocial care, pediatric oncology nurses, cancer care



Parents' Experience of their Child Cancer

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Background: Suffering from life-threatening diseases such as cancer, due to its impact on the patients causes myriads of changes in the function of the family. The objective of this study was to clarify parents' experiences of childhood cancer.

Methods: This qualitative study was conducted through purposive sampling method. Semi-structured interviews were conducted with 30 parents whose children were diagnosed with cancer in the oncology department of Motahary Hospital in Urmia, Iran. Interviews were transcribed and analyzed.

Results: During data analysis, 4 main themes emerged including destroyer and terminator of life, horror and hope, disturbance of normal life, and gaining valuable experience.

Conclusion: Parental roles, routine care of a child with cancer, and facing multiple treatments and childcare problems threatened parents' compliance with the condition of the disease or treatment, and thus, parents sought social support. Therefore, more attention should be paid to the parents' probable reaction and different life dimensions. To make healthcare more effective, providing necessary psychological, mental, and emotional support and increasing parental hope is necessary. Parents of a child with cancer should be assisted in preventing some healthcare problems and coping with their child's illness.

Keywords: childhood Cancer; Qualitative Research; Parents' experience



Depart Evaluation the Effects of Pharmacological Effective Concentration of the Aspirin in Combination with Radiotherapy on MCF-7 Cell Line

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Background: The studies have shown that aspirin, an anti-inflammatory agent, could reduce occurrence of different cancers. The aim of the present study was to evaluate the effects of pharmacological effective concentration of the aspirin in combination with radiotherapy on MCF-7 cell line.

Methods: After culture of MCF-7 was performed, the cells were treated with 1, 2, 3, 4 and 5 mM aspirin and 0.1 doxorubicin as positive control for 24 hrs. Then the cells were undergone radiotherapy. The proliferation and viability of the cells were measured with MTT assay and acridine orange and propidium iodide staining using spectrophotometer and fluorescence microscopy.

Results: The findings showed that proliferation rate and viability of the cells treated with aspirin 5 mM in combination with radiotherapy were significantly decreased compared to the control group ($P < 0.05$).

Conclusion: Aspirin showed lesser anti-proliferative activity compared to doxorubicin, however, it could be taken into consideration in combinational therapy because of its availability and affordability.

Key words: Aspirin, Breast Cancer, Viability.



Comparative Study of the Pediatric Hospice Palliative Care in Iran and Selected Countries

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Introduction: Pediatric Hospice Palliative Care (PHPC) is a holistic approach to care which focuses on relieving the physical, social, psychological and spiritual suffering experienced by children and families who face a progressive, life-threatening condition. The present study was conducted with the aim of describing and comparing of the PHPC services in the UK, Canada, Australia, Japan, India, Jordan and Iran.

Methods: In this descriptive-comparative study, PHPC systems in the selected countries and Iran were reviewed and compared (similarities and differences) based on the WHO guideline in 2018-2019.

Results: The National PHPC Program and its integration into the health system levels are the main features. Donation is the most common source of financing. The cancer patients mainly are service receivers. Curriculum reform, specialty and sub specialty disciplines creation, and training courses are bold in the field of human resource development. National guidelines, opioids access, development of research activities, the presence of national information network and quality control are other significant acts. There is no formal structure and program of PHPC services in Iran. Of course, some scattered and very limited services are provided as part of general palliative services to cancer pediatric.

Conclusion: PHPC services are in a medium to low level in developing countries including Iran and it requires more efforts and research in this area.

Keywords: Pediatric Hospice Palliative Care, End-of-Life, System, Service



The Effectiveness of Cognitive-Behavioral Stress Management Group Training on Anxiety, Stress and Depression in Mothers of Children with Cancer

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Background and Aim: The present study was designed to investigate the effectiveness of cognitive behavioral stress management group training on anxiety, stress and depression in mothers of children with leukemia.

Materials and Methods: The research instrument is the Mental Health Scale (DASS). Twenty-two of these mothers were selected by multistage cluster sampling from treatment centers of ShohadayeTajrish Hospital and Shariati Hospital in Tehran. They were divided into control and experimental groups. Post-test with the control group, the experimental group received 10 sessions of cognitive-behavioral stress management training, while the control group did not receive any intervention. Both groups received pre-test and post-test using Anxiety, stress and depression scale were evaluated and the Results were analyzed using covariance analysis test. The multivariate analysis was.

Findings: The Results showed that there was no significant difference between the two groups in the pre-test, but cognitive-behavioral stress management training significantly reduced the anxiety, stress and depression scores in the experimental group.

Conclusion: The malignancy of the malignant type of the blood can make any family in crisis. Cognitive-behavioral stress management training program can alleviate the intervention programs at the general population level and target groups related to the subject through reducing anxiety, stress and depression problems of this vulnerable population.

Keywords: leukemia, stress management, behavioral methodological



Nutritional Care in Wilms Tumor Children

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Introduction: The most common primary malignant kidney tumor of childhood is nephroblastoma of embryonic origin, which the role of nutrition in these children is a very important issue, so determination of Nutritional Care in Wilms Tumor is the purpose of this study.

Methods: This review study was conducted by searching for 12 articles on SID, Google scholar, Pubmed, CINAHL, and Science Direct sites using Keywords for nutrition, safe, management, children, cancer.

Findings: which accounts for about 6% of childhood malignancies and is one of the most common solid kidney tumors in childhood. And nutrition status is a prognostic factor in children with malignancy. Nutritional support can maintain or improve the nutritional status of children with nephroblastoma during initial treatment. Surgery, nausea, and vomiting associated with chemotherapy, as well as acute radiation detoxification, reduce food intake and further reduce nutritional reserves in children with cancer. The challenge for the Nutrition Team is to reduce this negative trend in an effort to improve the survival rate of these children. Malnutrition in childhood cancer is a complex and multi-stage process. There is currently no single measure to identify people at risk of malnutrition.

Conclusion: The role of body composition in solid childhood tumors is a critical issue and is critical for advancing our understanding of the mechanisms through which nutritional status can compromise the unintended consequences in this patient population. And the review of the articles in this study strongly supports the need to better understand the role of nutritional status in solid childhood tumors.

Key words: Nutrition, Safe, Management, Children, Cancer



The Effectiveness of Spiritual Intervention on Reducing Mothers' Anxiety in Blind patients with cancer

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Introduction: The impact of a cancer on the distress of parents and their family members is no less than that on lifequality of a paatient with cancer.

Objective and Method: The purpose of this study was to investigate the effectiveness of spiritual intervention in reducing the distress of mothers of blind people with cancer. This research is a quasi-experimental design. The statistical sample consisted of 15mothers of blind people with cancer who are members of the Iranian Association of Blind whose child was treated at Roshana Cancer Center in Tehran, randomly selected and underwent spiritual intervention based psychotherapy. The intervention was taught and performed in 6 sessions, each day for 90 minutes. Mothers' distress was assessed in the first session before the start of treatment and then in the third and fifth sessions using the Kessler Anxiety Questionnaire (K10). 3 weeks after the last session of intervention, mothers' distress was assessed again with the same questionnaire and then the Results were statistically analyzed. Repeated measurement was used to analyze the data.

Results: The Results showed that spiritual intervention was effective in reducing distress in mothers of blind patients with cancer.

Conclusion: In the context of holistic planning in support of mothers of blind patients with cancer, psychotherapy based on spiritual intervention is considered as an important issue and it is necessary to receive more attention from relevant specialists and psychology units.

Key words: Spiritual intervention, distress, cancer, blind patient



Assessment of Uncertainty in Fathers of Children with Cancer and Factors Affecting It

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Background & Objectives: Childhood cancers incidence is increasing, the survival rate of these children has also increased dramatically. Childhood cancers lead to psychological challenges of parents. Therefore, this study was designed and conducted to investigate the uncertainty and its influencing factors in fathers of children with cancer.

Methods: This cross-sectional study was performed on 88 fathers who had cancer children referred to a pediatric oncology ward of Moteheri hospital during the past 5 years.

Initially, the fathers were contacted and those who were willing to participate in the study completed an uncertainty questionnaire consisting of 31 questions.

Results: The mean uncertainty score was 81.69 ± 18.51 and correlated with mother age, childbirth order, child age ($p < 0.05$). Also, the uncertainty scores according to the child's disease status, complication were significantly different ($p < 0.05$). The multivariate analysis shows that the variables of children birth order, numbers of children, child age, father job, income, living area and Refer to the consultant were significantly associated with father uncertainty.

Conclusion: Father uncertainty about the status of the child's illness seems to be an important factor that demographic factors and the condition of the children disease can be



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good predictors and should be taken into account to better manage the child's mental health and subsequent illness. Previous studies have also shown the importance of parental uncertainty in the status of the child's illness and treatment.

Keywords: uncertainty, Father, Childhood cancers, pediatric oncology



The Efficacy and Safety of *Allium Ampeloprasum* L. in Reducing Neutrophil Recovery Time in Childhood Cancer with Febrile Neutropenia: A Randomized, Double Blind, Placebo-Controlled Trial

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Objectives: This study evaluates the efficacy *A.ampeloprasum* L. at neutrophil recovery time in children with chemotherapy-associated febrile neutropenia.

Design, setting, interventions, and main outcome measures: Overall, 97 febrile neutropenic children were enrolled. The intervention group (n=49) was given *A.ampeloprasum* L. in capsules (500 mg twice daily) for 7 days plus supportive care. The control group (n=48) was treated similarly with supportive care and placebo capsules. Total white blood cell (WBC) and absolute neutrophil counts (ANC) were checked on a daily basis and neutrophil recovery time in both groups was compared.

Results: Patients in the intervention group experienced shorter neutrophil recovery compared to the control group (4.02 ± 2.32 days vs. 6.38 ± 2.80 days respectively, $P < 0.001$). The intervention group was discharged from the hospital earlier than the control group with a mean of two days, but it did not reach statistical significance ($P = 0.133$). Mean WBC and ANC were not significantly different in the two groups. The herbal medicine was well tolerated and no adverse effect was reported.

Conclusions: A fresh lyophilized extract from deciduous leaves of *A.*



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Determinants of Serious Bloodstream Infections in Iranian Pediatric Cancer Patients

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Objectives: Bloodstream infections (BSI) remain a major cause of morbidity and death in patients undergoing treatment for cancer. However, all recent epidemiological and therapeutic studies underline the absolute need for knowledge of the factors governing the infections in each center. The aim of this study is to identify the factors affecting BSI in the Shahid Beheshti Medical University. More tailored policies for the treatment of patients with febrile neutropenia following chemotherapy can then be created.

Patients and methods: Over a 12-month period, all children with cancer and fever, with or without neutropenia, who were admitted to the Shohada Tjrih Hospital for empirical therapy of febrile episodes and who had a microbiologically confirmed bloodstream infection were studied retrospectively.

Results: A total of 164 BSI occurred in 587 febrile episodes in pediatric cancer patients at the Shohada Tjrih Hospital in one year. Gram-positive bacteria were isolated in 84 episodes (51.2%) and 61.9% of the total isolates (either single or mixed), Gram-negative in 48 (29.6%), and mixed infections in 22 (13.7%). The common causative agents of bloodstream infections in this study were coagulase-negative staphylococci (16.2%), *Staphylococcus aureus* (13.4%), *Streptococcus* spp. (12.1%) followed by *Acinetobacter* spp. (6.7%) and *Pseudomonas* spp. (5.5%). Fungemia was encountered in 18 episodes, being mixed in nine of them. A more serious BSI in terms of a prolonged episode was encountered in 30.2% of the episodes and was significantly associated with patients being hospitalized, having intensified chemotherapy, polymicrobial and fungal infection, lower respiratory tract infections and persistent neutropenia at day seven.

Conclusions: In a large population of children, common clinical and laboratory risk factors were identified that can help predict more serious BSI. These results encourage the possibility of a more selective management strategy for these children.



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Keywords: Bloodstream infections, Fungemia, immunocompromized oncology patients



Need for Protective Self-Care in Children Cancer Survivors

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Abstract

Introduction: The number of cancer survivors increases in recent years and this cause increasing health care needs of this group. In chronic diseases, patients or their family are usually responsible for continuing the care and achieving this goal requires identification of self-care needs. Therefore the present study was conducted with the aim of exploring adolescent cancer survivors' perception of self-care needs.

Methods: Qualitative research with conventional content analysis approach from February 2017 to February 2018 was done. Participants were 32 people composed of adolescent cancer survivors, parents, nurses, physician and Mahak institution staff that were selected from Children and Qaazi Tabatabaee teaching hospitals and Mahak charity institution in Tabriz and Urmia. Participants were selected through purposeful sampling until data saturation occurred. To collect the data, individual face to face and semi-structured interviews were used. All of interviews were recorded and then were transcribed verbatim and typed. Graneheim and Lundman steps were used for data analysis. To manage the data, MAXQDA10 software was used.



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Results: Three categories emerged from the analysis of data: "Need for protection against physical threat", "Need for protection against adolescent's mental damage" and "Need for protection against family mental damage". These three categories form one theme: "protective self-care" as an essential self-care need in adolescent cancer survivors.

Conclusion: Finding of the study indicates that self-care is a major need for cancer survivor. Therefore, clinical staff and nurses need to pay attention to this need in dealing with cancer survivor and plan their care based on these needs.

Keywords: Protection, Need, Self-care, Cancer survivor, Adolescent.



The management of pain and the effect of opioid drugs in controlling cancer pain

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Introduction: The consequences of not treating cancer pain include decreasing patient function and increasing mental stress. Due to the importance of pain management, the prevalence and severity of pain, consumed drugs and the amount of pain control should be measured. Opioid drugs are the preferred treatment to relieve chronic cancer pain. The necessity of taking these drugs is the exact choice of the patient, the correct administration of the opioid, the dose and the side effects of the drug. Therefore, this study aims to review the management of pain and the effect of opioid drugs in controlling cancer pain.

Materials and Methods: the types of consumed painkillers and consumption indices of the opioid drug were determined by an in-person interview with a questionnaire. Moreover, the severity of pain was also determined by Numeric Rating Scale (NRS) and a separate visit in three-week interval.

Findings: Opioids were the most commonly consumed analgesics, and among the opioids, codeine and morphine were the most commonly consumed. Moreover, the pain was relieved by the use of analgesics and opioids during the first and second visits.

Conclusion: Despite a statistically significant decrease in pain score by consuming painkillers, the rate of reduction was not clinically significant. Patients also suffered from pain in the range of 3 and 4 in the NRS and the use of standard guidelines in this area is a good guide.

Keywords: Pain control, Opioids, Pain Management, Cancer



Psychometrics "Family Caregiver caring power for Cancer Patient Scale" in mothers who have a child with cancer

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Background: Childhood illness can affect the quality of life of the child's primary caregiver. The cancer care experience for informal caregivers (family) has adverse physical, psychological and social consequences. The ability and quality of care for a sick child is affected by maternal health. Therefore, the aim of this study is to provide psychometric evaluation of an appropriate and reliable tool to investigate the potential of caring power among mothers of children with cancer.

Materials and Methods: The present study is a methodological research in which psychometric "Caring power for mothers of children with cancer" questionnaire was performed from 196 mothers participating in the study.

In this study, the validity of the instrument was based on the Family Caregiver Empowerment for Cancer Patient tool, which was designed and validated in 2017 with 31 items. Then, face validity assessments, construct validity and internal consistency, and reliability of test-retest were conducted. Data were analyzed using SPSS version 19 and LISREL 8.5.

Results: The final scale of the questionnaire including 29 items with five sub-scales of "Effective role play", "Fatigue and Resignation", "Trust", "Uncertainty" and "Caring ignorance". The stability of the instrument with a two-week interval was 0.75. Cronbach's alpha was 0.71.

Conclusions: The instrument has good validity and reliability indices. It can be used to assess caring power mothers of children with cancer.

Keywords: Psychometrics, Validation, Confirmatory factor analysis, Mothers, Neoplasm, Caregivers



Radiation therapy exclusion from Hodgkin lymphoma treatment: Is it helpful or harmful?

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Object: Hodgkin lymphoma (HL) is one of pediatric and adult cancers, with cure rate of over 90% and high long-term survival rates by treatment with chemotherapy alone or combined with radiotherapy (RT). However, survivors of pediatric HL are at high risk of secondary cancers and cardiovascular disease due to treatment. Considering the complications of RT, we aimed to evaluate the consequences and outcomes of the treatment with and without RT in retrospective study in Urmia medical science university pediatric oncology department.

Method: We carried a cross sectional retrospective study by referring and review of records for all patients admitted in Motahari hospital with HL diagnosis from 1995 to 2016. The incomplete records and taking chemotherapy out of protocol was our exclusion criteria. The staging of disease was classified by Ann Arbor staging.

Results: 35 patients enrolled to our study that 54.3% was female and 45.7% was male patients. The mean age of patients was 10.08 ± 6.38 years. 10 (28.6%) cases classified in stage 1, 13 (37.1%) case in stage 2, 9 (25.7%) cases in stage 3, and 3 (8.6%) cases in stage 4. 30 patients (85.7%) was treated by chemotherapy and 5 (14.3%) patients was treated by chemotherapy and radiation therapy. Our data indicated that there was no significant difference between the stage of disease and type of treatment (chemotherapy with or without radiation therapy categorized to stage of the disease) with outcomes (P value=0.339). Not only the response to treatment has no significant difference among stages of the disease (P value=0.366), but also the overall survival of the patients was 97.1%, and there as no significant difference between high (3&4) and low stages (1&2) (P value=0.657).



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Conclusion: According to our findings with consideration of cost and harms of radiation therapy, we suggest limitation of radiation therapy to patients that don't respond to chemotherapy solo protocols.



Blood component therapy, demographic and outcome feature of pediatric acute lymphoblastic leukemia

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Introduction: Acute lymphoblastic leukemia (ALL) is the most common childhood malignancy, with an annual incidence rate of three to four cases per 100,000 children [1] Most children with ALL receive blood components including packed cells, platelets, fresh frozen plasma (FFP) and whole blood; transfusions may affect ALL outcomes. [2]

Methods: Demographic information of 208 patients with pediatric ALL from February 2011 to August 2019 were enrolled to this cross sectional study.

Data is gathered and rechecked from archive files and e-files of Motahari hospital in Urmia, Iran.

The variables are age, gender, high/low risk, treatment methods, bone marrow\ testicular\ CNS relapses.

Results: Out of 208 patients (female:50.4% and male:49.6) with median age of 9.57 ± 4.42 , The average age of diagnosis was 5.48 ± 3.38 and Pre B ALL was the most common type (94.3%). A total of 130 patients were treated with the new protocol and 78 patients were treated with the old protocol. The majority of relapses occurred in the bone marrow. There were 131 low risk patients (62.9%) and 77 high risk patients and about blood components received by patients, the average number of packed cell received was 4.32 ± 2.93 packets, platelet 5.97 ± 7.09 packets and FFP 5.29 ± 6.6 packets. The mean overall survival of patients was 3.42 ± 2.58 years in 10 years.

Keywords: pediatric acute lymphoblastic leukemia, blood component therapy, demography



How to communicate with parents of children with cancer

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Introduction: Giving bad news to parents of children with cancer has always been a challenging and stressful situation for doctors. In this study, we aimed to assess the tendency of parents of children with cancer to get informed about their children's disease and also the most appropriate way to convey the bad news.

Methods: In this cross-sectional analytic study, we collected data using a questionnaire consisting of questions about the tendency of parents to get informed and also their preference in the way of getting bad news about their children's cancer. Qualitative and quantitative data were analyzed using Chi-square and t tests, respectively.

Results: Ninety-five parents of children with cancer (51 mothers and 44 fathers) and 113 parents of healthy children (64 mothers and 49 fathers) filled the questionnaires. The results showed that 88.2% of mothers and 97.7% of fathers of children with cancer expressed their tendency to get informed about their children's cancer. Also, 84.4% of mothers and 93.9% of fathers of healthy children preferred to get informed about their children's cancer. Most of the parents in both groups preferred to be informed about their children's disease straightforwardly. Age and education had no significant relationship with tendency of the parents and their preference in the way of getting informed.

Conclusion: Communicating with parents of children with cancer in a direct and straightforward way seems to be the most suitable way for conveying bad news. We recommend further studies with higher sample sizes and also recommend comparing the results of the similar studies in different societies and different time periods.

Keywords: pediatric cancer, parents, communication, bad news