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West Asia Cancer Conference

West Asia Cancer Conference
November 2016 - Tehran, IRAN

Abstracts

Iranian Cancer Association

موسسه خیریه
حمایت از بیماران مبتلا به سرطان

نور

شماره ثبت: ۳۴۸۰۷
پروانه فعالیت: ۱۰۸۵۸۰

آدرس دفتر مرکزی : تهران . خیابان ولیعصر میدان ونک . نبش کوچه بیستم . پلاک ۲۴۵۳ . طبقه ۳

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References: 1. Hurwitz H et al. N Engl J Med. 2004. 2. Giantonio B et al. J Clin Oncol. 2007. 3. Saltz L et al. J Clin Oncol. 2008. 4. Bennouna J et al. Lancet Oncol. 2013. 5. Sandler A et al. N Engl J Med. 2006. 6. Reck M et al. J Clin Oncol 2009. 7. Miller K et al. N Engl J Med. 2007. 8. Friedman et al. J Clin Oncol. 2009. 9. Robert N et al. J Clin Oncol. 2011. 10. Burger R et al. N Engl J Med. 2011. 11. Perren T et al. N Engl J Med. 2011. 12. Aghajanian C et al. J Clin Oncol. 2012. 13. Escudier B et al. Lancet 2007. 14. Pujade-Lauraine et al. . J Clin Oncol. 2014. 15. Tewari et al. N Engl J Med. 2014. 16. Avastin Summary of Product Characteristics (SmPC) version 21.12.2015.

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HIGHLIGHTS OF PRESCRIBING INFORMATION: These highlights do not include all the information needed to use AVASTIN safely and effectively. See full prescribing information for AVASTIN. Indications and potential uses Metastatic colorectal cancer: First-line treatment of patients in combination with the following chemotherapies: 5-fluorouracil/folinic acid, 5-fluorouracil/folinic acid/irinotecan, capecitabine/oxaliplatin (XELOX). Second-line treatment after failure of fluoropyrimidine-based chemotherapy in combination with the following chemotherapy: 5-fluorouracil/folinic acid/oxaliplatin (FOLFOX). In combination with paclitaxel for first-line treatment of patients with HER2-negative, metastatic breast cancer. First-line therapy in combination with cisplatin and gemcitabine-containing chemotherapy in unresectable, advanced, metastatic or recurrent, non-squamous non-small cell lung cancer (NSCLC). In combination with interferon alfa-2a for first-line treatment of nephrectomised patients with advanced and/or metastatic renal cell cancer. As a single agent for the treatment of patients with relapsed glioblastoma (WHO grade IV) after prior therapy with temozolomide. In combination with carboplatin and paclitaxel for the treatment of previously untreated patients with ovarian cancer (FIGO stages III and IV) in whom complete tumor resection was not possible and who are unlikely to benefit from further surgery after chemotherapy. In combination with carboplatin and gemcitabine, is indicated for the treatment of patients with recurrent platinum-sensitive epithelial ovarian, fallopian tube or primary peritoneal cancer (with a platinum-free interval of at least 6 months). In combination with paclitaxel, topotecan or pegylated liposomal doxorubicin for the treatment of patients with recurrent, platinum-resistant epithelial ovarian cancer, fallopian tube cancer or primary peritoneal cancer who have been treated with up to two prior chemotherapy regimens and have not been previously treated with bevacizumab or other VEGF inhibitors. In combination with chemotherapy for the treatment of patients with persistent, recurrent, or metastatic cervical cancer. Dosage and administration: General Do not administer as a rapid intravenous infusion or bolus. Avastin infusions must not be administered or mixed with glucose solutions. Reducing the dose of Avastin because of adverse events is not recommended. If necessary, Avastin should be withdrawn permanently or temporarily. Metastatic colorectal cancer: First-line treatment: 5 mg/kg body weight once every 2 weeks or 7.5 mg/kg body weight once every 3 weeks. Second-line treatment: 10 mg/kg body weight once every 2 weeks. It is recommended that Avastin treatment be continued until progression of the disease. Metastatic breast cancer: 10 mg/kg body weight given once every 2 weeks or 15 mg/kg body weight given once every 3 weeks. It is recommended that Avastin treatment be continued until progression of the disease. Advanced, metastatic or recurrent non-small cell lung cancer (NSCLC):
In conjunction with cisplatin- and gemcitabine-containing chemotherapy as 7.5 mg/kg body weight once every 3 weeks for up to 6 treatment cycles. It is then continued as monotherapy until disease progression.Advanced and/or metastatic renal cell cancer: 10 mg/kg body weight once every 2 weeks as an intravenous infusion. It is recommended that Avastin treatment be continued until progression of the disease. Glioblastoma (WHO grade IV): 10 mg/kg body weight every 2 weeks as an intravenous infusion. It is recommended that Avastin treatment be continued until progression of the disease. Ovarian cancer: Previously untreated patients: In combination with carboplatin and paclitaxel for up to 6 treatment cycles. Avastin is then administered for 15 months or until disease progression, should this occur earlier. The recommended dose is 7.5 mg/kg body weight given once every 3 weeks as an intravenous infusion. Relapsing platinum-sensitive patients: In combination with carboplatin and gemcitabine for 6 to 10 treatment cycles. Avastin is then administered until disease progression. The recommended dose is 15 mg/kg body weight given once every 3 weeks as an intravenous infusion. Relapsing platinum-resistant patients: In combination with paclitaxel, topotecan (administered weekly) or pegylated liposomal doxorubicin, the recommended dose is 10mg/kg body weight given once every 2 weeks as an intravenous infusion. In combination with topotecan, administered on days 1-5, the recommended dose of Avastin is 15 mg/kg body weight given once every 3 weeks as an intravenous infusion. Cervical cancer: In combination with paclitaxel and cisplatin or paclitaxel and topotecan. The recommended dose is 15 mg/kg body weight once every 3 weeks as an IV infusion. Contraindications: Hypersensitivity to the active substance or any of the constituent excipients. Hypersensitivity to CHO (Chinese hamster ovary) cell products or other recombinant human or humanised antibodies. Pregnancy. Warnings and precautions: In order to improve the traceability of biological medicinal products, the trade name Avastin should be clearly recorded on the patient card. Substitution of another biological medicinal product requires the consent of the prescribing physician. The particulars in this prescribing information apply to Avastin only. Intravitreal use: Avastin is not suitable for intravitreal use. Pregnancy and lactation Pregnancy: Women of childbearing age must be strongly advised to use a reliable method of contraception during Avastin therapy. Lactation: Women should discontinue breast-feeding during Avastin therapy and should not breast-feed for at least 6 months after the last dose of Avastin.Undesirable effects: The adverse events most frequently observed across all clinical trials in patients receiving Avastin were hypertension, fatigue or asthenia, diarrhea, nausea and abdominal pain. The most serious adverse events were the following: Gastrointestinal perforations, Hemorrhage, including pulmonary hemorrhage/hemoptysis. Arterial thromboembolism Infections and infestations Common: sepsis, abscess, cellulitis, infection. Blood and lymphatic system disorders Very common: febrile neutropenia, leukopenia, neutropenia, thrombocytopenia. Common: anemia, lymphopenia. Endocrine disorders Very common: ovarian failure. Metabolism and nutrition disorders Very common: anorexia, Common: dehydration. Nervous system disorders Very common: peripheral sensory neuropathy, dysgeusia, headache, dysarthria, Common: cerebrovascular accident, syncope, somnolence Eye disorders Very common: eye disorder, lacrimation increased. Cardiac disorders Common: congestive heart failure, supraventricular tachycardia. Vascular disorders Very common: hypertension Common: arterial thromboembolism, deep vein thrombosis, hemorrhage. Respiratory organs Very common: dyspnea, epistaxis, rhinitis Common: pulmonary embolism, hypoxia, dyspnea, epistaxis, dysphonia. Gastrointestinal disorders Very common: diarrhea, nausea, vomiting, abdominal pain, constipation, stomatitis, rectal hemorrhage, Common: intestinal perforation, ileus, intestinal obstruction, recto-vaginal fistula (most commonly classified as enterovaginal fistula), gastrointestinal disorder, stomatitis, proctalgia, abdominal pain, gastrointestinal disorder, stomatitis. Skin disorders Very common: exfoliative dermatitis, dry skin, skin discolouration, Common: palmar-plantar hand-foot syndrome. Musculoskeletal and connective tissue disorders Very common: arthralgia, Common: muscle weakness, myalgia, back pain. Renal and urinary tract disorders Very common: proteinuria, Common: urinary tract infection General disorders and administration site reactions Very common: asthenia, tiredness, pyrexia, pain, mucosal inflammation, Common: lethargy, pain, mucosal inflammation Dosage Forms Vials 400 mg/16 ml, Vials 100 mg/4 ml
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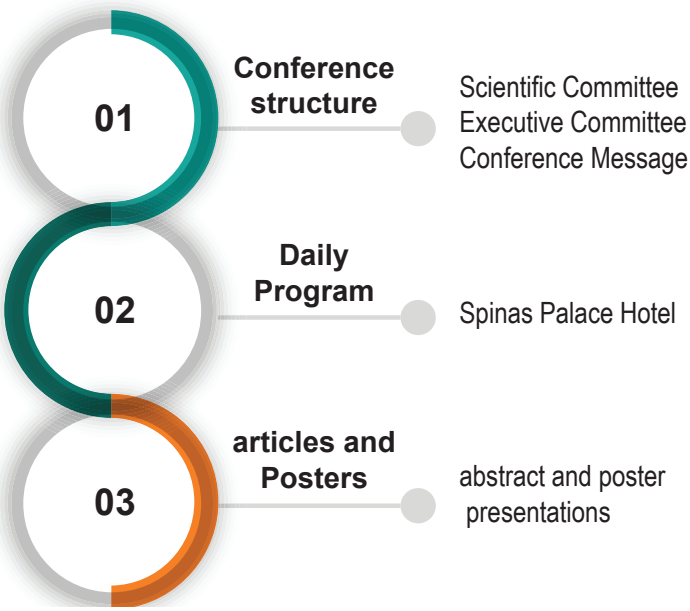
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abstract and poster presentations

West Asia Cancer Conference

West Asia Cancer Conference (WACC)

Conference organizer
Iranian Cancer Association

17-19 November 2016 - Tehran, IRAN
Espinas Palace Hotel

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Acknowledgement

We would like to express our sincere thanks to:
- Head of Iranian President Office
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- Environmental Protection Organization
- Ministry of Foreign Affairs
- United Nation Resident Coordinator in Iran
- WHO Representative in Iran

For their continued cooperation in this regional scientific event

West Asia Cancer Conference
17-19 November 2016 - Tehran, IRAN

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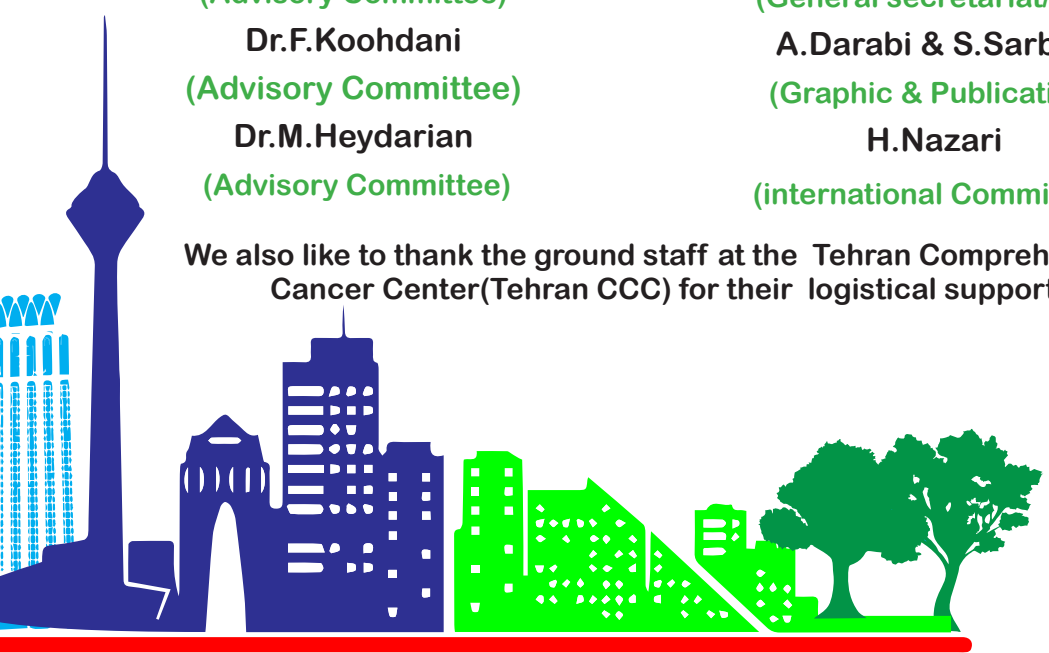

West Asia Cancer Conference

Dear colleagues,

WHO has identified cancer as a silent crisis for the world health, which has been a major issue affecting the global population.

Cancer care is a multidisciplinary field in which many specialsts from various fileds are required to work together. Regular face to face meetings are the ideal way to exchange information as a part of continued medical education and professional developement in this multidisciplinary approach.

As the aim of our gathering in the form of the first West Asia Cancer Conference (WACC), we have to address and optimize all issues affecting cancer care .

In order to enrich the content of this meeting we welcome all specialists related to the field of basic and clinical sciences in oncology throughout the world. We sincerely hope that your participation will help towards a very fruitful conference and useful cooperation .

Finally, we hope to make WACC an interactive scientific event with international experts in the field of oncology, to update our knowledge and optimize our practice.
Have a pleasent stay in Tehran and enjoy your time.

Kind Regards,
Manouchehr Davaei, MD
President of the Iranian Cancer Association

West Asia Cancer Conference		
Thursday 17 Nov. 2016		
8:30-9:40	Opening Session	Session:A1
Chair: Dr. M.Dicato ,Dr.H.Khoee , Dr.Kh. Sheibani , Dr. M.Keyhani , Dr.M. Salabian		
9:40-10:00..... Cost Is Part Of Treatment Of The Equation In Cancer Treatment (Prof. Mario Dicato/Luxembourg)		
10:00-10:30..... Overview On Early Detection Palliative Care & Cancer Registration (Dr .L. Kobeissi /WHO/EMRO)		
10:30-11:00	**Break**	
	Aetiology & Prevention	Session:A2
Chair: Dr. Shorbaji , Dr.P. Mehdipour , Dr. H. Malek-Afzali , Dr.N.Parsa		
11:00-11:15 ..... .Genomic Instability & Cancer (Dr.Mozdarani/Iran)		
11:15- 11:30..... Geology & Cancer(Ms Rahmani, Engineer/Iran)		
11:30-11:45..... Mutagenic Agents (Dr.Arbabi/Iran)		
11:45-12:00..... Updates On Nutrition & Cancer (Dr.Koohdani/Iran)		
12:00-12:15..... Vaccination & Cancer (Dr.Mardani /Iran)		
12:15-12:30..... Updates On Cancer Genomics (Dr.Parsa/NIH)		
12:30- 12:50..... Research Gaps & Prevalence Of Cancer In The Asian Arab Countries (Dr. N. Al-Shorbaji/Jordan)		
12:50-14:00	**Lunch**	
	Palliative Care	Session:A3
Chair: Dr. B.Shafaghi,Dr.A.Ardakani , Dr. B.Sadrizadeh , Dr.R. Malayeri , Dr.A.Hazini		
14:00-14:20.....Cancer Profile Of Iran (Dr. Motlagh/Iran)		
14:20-14:35..... Optimal Antiemetic Therapy (Dr.Warr/Canada)		
14:35-14:45.....Interventional therapies in cancer pain(Dr.Nazemian/Iran)		
14:45-14:55. Palliative Care In Developing Countries(Dr. Tahmasebi/Iran)		
14:55-15:05.....Status of palliative care in Iran (Dr.Malayeri/Iran)		
15:05- 15:15..... Nutrition In Palliative Care (Dr.Azadbakht/Iran)		
15:15-15:25..... Palliative Care In France(Dr. Hojat/France)		

16:00-17:00	Clinical Pharmacy	Session:A4

16:00-16:10.....Introduction, Clinical Pharmacy In Oncology (Prof. Gholami/Iran)
16:10-16:20.....Pharmacodynamic Studies in Cancer Care (Dr.Rezaee/Iran)
16:20-16:30.....Pharmacokinetic Studies In Cancer Care (Dr.Namazi/Iran)
16:30-16:40.....Clinical Pharmacy In Oncology Ward (Dr.Jahangard/Iran)
16:40-16:50.....Clinical Pharmacy In Heamatopoietic Stem Cell Transplantation (Dr.Tavakoli/Iran)
16:50-17.....Cell Cycle kinases As Therapeutic Targets In Cancer (Dr.Farasati/Iran)
17-17:15..... Q&A

Friday 18 Nov. 2016
8:30-10:30 Head & Neck Session:B1
Chair:Dr. Saghari, Dr.A.Keyhani , Dr.H.Dehnad,Dr.M.AbedMoghaddam
8:30-8:50 .....Updates On Thyroid Cancer Management (Dr.T Sang/Canada)
8:50- 9:10..... Horizontal lateral Thyroidectomy (Dr. Varughese/India)
9:10-9:30..... An Overview Of Head & Neck Radiotherapy (Dr. Dehnad/Netherlands)
9:30-9:55..... Ocular Oncology (Dr. Krema/Canada)
9:55-10:05.....Intra Arterial Chemotherapy In Retinoblastoma (Dr.Ghenaati / Iran)
10:05-10:35 Break
10:35-13:00 Urology Oncology Session:B2
Chair:Dr. Gh.Pourmand, Dr.Y. Hosseini, Dr.M.Jalali.N , Dr.H.Toussi , Dr.M.Sodehi
10:35-10:50..... Clinical Vs. Statistical Management Of Advanced Solid Tumors (Prof. Dicato/Luxembourg)
10:50-11:05.....Q &A
11:05-11:15.....Modern Prostate Imaging (Dr. Ghafoori/Iran)
11:15-11:25..... Updates On Bladder Cancer(Dr. Fadavi/Iran)
11:25-11:35.....Updates On mRCC (Dr.Schmidinger /Austria)
11:35- 11:50..... Q &A
11:50-13:00.....Panel Discussion, Hard Talk On Prostate Cancer (Dr. H.Toussi/England) Dr. Pourmand , Dr. Aghili , Dr. Shariat, Dr. Razi , Dr. Ayati, Dr.Arefpour, Dr. Ghafoori , Dr. Bakhshayesh-Karam
13:00-14:00 Lunch
14:00-16:00 Colorectal Cancer Session:B3
Chair: Dr. M.R.Mir, Dr.P.Azadeh, Dr.E.Esmati , Dr.Kh.Ayyazi ,Dr.H.Kalbasi
14:00-14:20.....Surgical Management of liver Metastases From CRC(Dr.Kianmanesh/France)
14:20-14:35..... Updates On Metastatic CRC (Dr. Iravani/Iran)
14:35- 14:55.....Adjuvant Management Of CRC (Dr. Riechelmann /Brazil)
14:55-16:00..... Panel Discussion On Rectal Cancer Management (Dr. Kalbasi /England) Dr. Akhlaghpour ,Dr. Rasekhi ,Dr.Tabatabai , Dr. Nikeghbalian Dr.Foroutan , Dr. JaberAnsari, Dr.VahidHosseini
16:00-16:30 Break
Satellite Symposium Roche Company (Systemic Treatments & Immunotherapy In Bladder Cancer) Prof.Joaquim Bellmunt Dana-Farber Cancer Institute, Harvard Medical School

Saturday 19 Nov. 2016
8:30-10:30 Session:C1
Chair: Dr.M. Niknam, Dr.M.Sardari , Dr.A.Jalili ,Dr.Hamdy A.Azim
8:30-8:45 .....Psycho-oncology Views (Dr. Arbabi/Iran)
8:45-9:05.. Updates On Hodgkins Disease Management (Dr.Tsang/Canada)
9:05-9:20..... Stem Cell Based Organoids A New Platform In Cancer Study (Dr. Mahmoudi/Netherlands)
9:20-9:35..... Tumor & Immune System (Dr. Niknam/Iran)
9:35-10:00.....Cancer Immunotherapy (Prof. Hamdy A.Azim /Egypt)
10:00-10:15.....Unique Response & Adverse Events Of Immunotherapy (Dr. Jenabian/Iran)
10:15-10:30.....Q&A
10:30-11:00 Break
11:00-13:00 Breast Cancer Session:C2
Chair: Dr.G.Mazdai, Dr.M.Khani , Dr.M.Atri ,Dr.K.Dolatshahi, Dr. A.KalantarHormoz
11:00-11:20.....Thermal Therapy Of Breast Cancer Immediately Post lumpectomy (Dr. Dolatshahi/USA)
11:20-11:40..... Supportive Care In Early Breast Cancer(Dr. Warr/Canada)
11:40-12:00.....Drainless Breast Cancer Surgery (Dr.Varughese/India)
12:00- 12:15..... Updates on Early Breast Cancer (Dr. Yahyazadeh/Iran)
12:15-13:00..... Panel &Case Discussion (Dr.Mazdai/Iran) Dr.Mahmoodzadeh, Dr. Tofighi, Dr. Homaee , Dr. Zare , Dr. Amooei. Dr.Attarian, Dr.Joulaee
13:00-14:00 Lunch
14:00-15:15 Session: C3
Chair: Dr.R. Riechelmann, Dr.M.Sotudeh , Dr.Sh.Akhlaghpour, Dr.N.Parsa
14:00-14:25.....Interventional Oncology,TACE (Dr. Golzarian/USA)
14:25-14:45.....Updates On Surgical Management Of Neuroendocrine Tumors (prof. Kianmanesh/France)
14:45-15:05..... Updates On Neuroendocrine Tumors Management (Dr. Riechelmann /Brazil)
15:05-15:15..... Q & A
15:15-15:45.....Closing Ceremony
15:45-16:15 Break
Satellite Symposium AMGEN Company (The Art Of Palliation Of Bone Metastasis) Prof. Hamdy A.Azim Clinical Oncology , Cairo University

West Asia Cancer Conference

West Asia Cancer Conference
November 2016 - Tehran, IRAN

Abstracts

Genome instability and cancer

Hossein Mozdarani, Ph.D
Professor of Medical Cytogenetics, Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. Email: mozdarah@modares.ac.ir

There are accumulating evidences indicating that cell transformation is associated with genome instability leading to an imbalance between the mechanisms of cell-cycle control and mutation rates within the genes.

Genome instability can be defined as an enhanced tendency for the genome to acquire mutations; ranging from changes to the nucleotide sequence to chromosomal gain, rearrangements or loss. In modern life, human is under constant exposure to toxic chemical substances, air pollutions and natural or manmade sources of non-ionizing radiations (microwaves, radiowaves, mobile, etc.) and ionizing radiation used for medical or industrial purposes. These agents are mostly potent inducers of oxidative stress and reactive oxygen species (ROS). ROS are a group of highly reactive molecules implicated in the oxidative damage of biological structures. ROS which give rise to various types of DNA lesions, including single-strand breaks and double-strand breaks (DSBs), and various types of base damage as well as DNA-DNA and DNA-protein cross links. The formation of ROS produces not only DNA strand breakages, but also might act as a signaling event leading to the release of cytokines or epigenetic changes, or trigger DNA repair machinery.

All primary lesions induced in the DNA are subjected to cellular repair processes; however, the unrepaired or misrepaired lesions may give rise to gene mutations and chromosomal aberrations (CA). Although double-strand breaks are considered as serious DNA damage, they may be repaired very effectively by either one of the two different repair mechanisms namely, homologous recombinational repair (HRR) and non-homologous end joining (NHEJ). HRR is able to restore the original sequence of DNA DSB leading to a lower risk of generation of deletions and insertions at the site of DSB. NHEJ is subject to a high risk of generation of de novo mutations at the sites of DSBs.

Thus susceptibility to mutagenesis is a direct consequence of the NHEJ system joining DNA free ends. The biological importance of genomic instability and DNA repair mechanisms in cancer development are particularly well illustrated by several heritable genetic disorders known as chromosome breakage or chromosomal

instability syndromes. These chromosome breakage syndromes are characterized by various defects in DNA repair, predisposition to various forms of malignancies and increased radiosensitivity. The chromosome breakage syndromes such as ataxia-telangiectasia, Nijmegen breakage syndrome, ataxia-telangiectasia-like disorder, Bloom syndrome, Werner syndrome and Fanconi anemia are human autosomal recessive diseases characterized by inherited chromosomal instability and cancer predisposition. Genome instability not only is involved in carcinogenesis but might be the underlying mechanism of various cellular responses to radiotherapy.

These cellular processes include inherent radiosensitivity, radioadaptation and bystander effects that might alter consequences of chemo-radiotherapy. Various molecular mechanisms of genomic instability and their relevance to carcinogenesis and its impact on cancer treatment will be discussed.

Keywords: Environmental exposure, Genome instability, Cancer predisposition, Carcinogenesis, Cancer treatment,

The UVS proteins showed the ability to repair the genetic errors in human normal cells

Helalat,1,3H., Parsa,2 N., Hooman,3 H., Rezaee,3 F. Sayadi,3 M., Yarmohamadi,3 M.
1.National Institute of Genetic Engineering and Biotechnology, Iran. 2. NIH – USA./National Comprehensive Cancer Center. Iran. 3. Sadran Biotechnology Foundation.Iran.

Introduction

UltraViolet radiation (UVR) is considered to cause non-melanoma skin cancers, including squamous cell carcinoma and basal cell carcinoma. UVR catalyzes covalent bond formation between adjacent thymine or cytosine. Here we have analyzed two common UVR products, Cyclobutane Pyrimidine Dimers (CPDs, 80–90%) and 6,4 pyrimidinepyromidone photoproducts (p6-4 PP, 10–20%). A single p6-4PP lesion is severalfold more toxic than a CPD in the cells. The simplest repair of UVR lesions is catalyzed by photolyases, which use visible light energy to repair the covalent bonds between pyrimidine bases. Photolyases specific for CPDs and p6-4PP are found in bacteria, plants and lower vertebrates. No photolyase gene has been found in the human genome. Human possess only the nucleotide excision repair (NER) pathway for repairing UVR lesions which is lacked inXerodermaPigmentosum resulting in skin multiple tumors on exposure to UVR light. Unrepaired pyrimidine dimers in humans may lead to melanoma, the deadliest form of skin cancer. Deinococcusradiodurans is known for its ability to withstand UVR and also can repair various kinds of DNA damage. The gene of Deinococcusradiodurans encoding UV-endonuclease β,which is reported to be involved in the initial incision of NER in the bacterium. This enzyme activity is missing in extracts of those strains mutated in one of three genes: UVS9 (uvsC), UVS25 (uvsD) and UVS78 (uvsE). In this study, we examined the ability of uvsE products to initiate repair of CPD and p6-4PP in human embryonicnormal kidney cell line 293T.

Materials and methods

The Lentivirus package plasmid psPAX2, pMD2 and G-envelope plasmid containing VSV-G wereenteredthe HEK-293T normal kidney cells. The transfected cells ware maintained and expanded in Dulbecco medium with 10% fetal bovine serum, 100 U/mL penicillin and 100 µg/mL streptomycin at 37°C in a humidified 5% CO2 incubator.Cloning of UVSE protein (a repairing protein) from D. radiodurans Recombinant lentivirus production and cell infection.The chimeric gene from D. radioduransas the template was amplified by PCR. HEK-293T cells were seeded in

10-cm-diameter cell culture dishes at a density of 2 × 106 cells/dishand incubated overnight.Transfected by standard DNA–calcium phosphate co-precipitation 24 h later. To induce UV damage, the HEK-293T cells treated or untreated with UVSE were exposed to 300 J/m2 UVB for 5 min, 10 min, 20 min and 30 min using a Benchtop 2UV trans-illuminator.To verify the expression of the transfected UVSE in stable clones, total cellular proteins were assessed by Western blotting.

Results and discussion

UVB radiation can lead to the formation of three major classes of DNA lesions, such as CPD, p6,-4pp and their Dewar isomers. HEK-293T cells were irradiated with UVB. Aliquots were taken at various times following irradiation and equal amounts of purified DNA from each time point (0, 1h, 2h), examining the kinetics of repair of p6-4pp and CPDs in the HEK-293T by ELISA with either of two monoclonal antibodies. Because p6-4pp lesions occur at a lower frequency than CPD lesion, the 300 J/m2 dose was chosen as the lowest dose of UVB that produced high enough numbers of p6-4pp lesions. At this UVB dose, the CPDs were the predominant UV-induced DNA lesions and are almost five-folds more prevalent than p6-4 pp.

Conclusion

Our data throughgenetic engineering demonstrated that theexpressed UVSEgene in the cultured HEK-293T normal kidney cells, function as a repairing protein against damages caused by the UVR. The cells withrepairing proteins showed the ability torepair the damages by 90% in CPD and p6-4ppas a result of UVR dose of 300 J/m2 for 4 hours. The cells lacking the UVSE protein, showed no genetic repair. Therefore, by over expressing the repairing genes, we can prevent the formation of cancer cells, especially skin cancer.

KeywordsUV-radiation, UVSE repairing protein, Genetic engineering, HEK-293T normal kidney cells.

Long term results and quality of life of unique drain less breast cancer surgery -Thomas' technique, reported for the first time.

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Background: Suction drains for seroma, after axillary dissection, increases hospital stay, morbidity, delays adjuvant treatment, and cannot obviate subsequent seromas. Normal Saline instillation into the dissected dead space in axilla and primary site, above central venous pressure to block lymphovenous ooze is described for first time .This reduces morbidity, hospital stay, total cost, improves quality of life.

Objectives: Since the randomized study by the author using this technique has shown to offer best quality of life with follow up for more than 5 years, long term benefits in terms of cosmesis, arm edema, local recurrences, psychological satisfaction and quality of life were analyzed

Methods: 762 patients were recruited from1998-2007 in the randomized trial, 389 in study arm and 373 in conventional arm. Self evaluation questionnaire on cosmesis ,arm edema, psychological satisfaction and quality of life was used .Clinical evaluation, tests for local and distant recurrences were conducted by surgeon.

Results: Cosmetic outcome were excellent in 310/389 in study arm , 292/373 in the conventional, very good in 51/389 and 47/373,good in 28/389 and 34/373, mild to moderate arm edema was observed in 4/389 in study arm, 13/373 in conventional arm, local recurrence occurred in 0/389 in study arm,2/373 in conventional arm, Quality of life evaluation reported excellent outcome in 98% study arm and 90% in conventional arm, respectively. Total cost showed 60% more in conventional arm.

Conclusion: This novel drain less technique, helps in faster rehabilitation in terms of psychological, occupational, and sexual aspects, reduces morbidity, shortens adjuvant treatment time interval, reduces hospital stay and costs ,offers better cosmetic outcome and quality of life

Choroidal Melanoma
Treatment Options at PMH

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Purpose

• To explore alternative radiation treatment techniques for Choroidal Melanoma (CM) at RMP

• To find a way to minimize CM RT complications for the maximum tumour control, by developing appropriate Tx techniques and by comparison between different treatment modalities available at PMH

Overview

• Intraocular melanoma
• Melanoma treatment strategies and Tx outcome
• The Collaborative Ocular Melanoma Study (COMS)
• Summary of current radiotherapy programs At PMH for CM

Uveal Melanoma

• Uveal melanoma is cancer of the eye and approximately 3% develop in the iris, 7% in the ciliary body, and 90% in the choroid
• Tumours arise from the pigment cells (melanocytes) that give color to the eye
• About 40% of patients are asymptomatic when their tumor is detected
• The size of the tumor tends to double yearly, creating pressure in the eye and often impairing peripheral vision

Epidemiology

•Uveal melanoma is more common in whites than in other races and they are eight times more likely to have melanoma than African-Americans and three times more likely than Asians

•The size of the tumour tends to double yearly, creating pressure in the eye and often impairing peripheral vision. (CM is about 90% of all uveal melanomas)

The choroid is a layer of blood vessels behind the retina, which supplies oxygen and nutrients to the outer layers of the retina

• Choroidal melanoma is the most common primary intraocular tumor in adults
• Choroidal melanoma is a primary cancer of the eye (>99%).
• Some choroidal melanomas are more life-threatening than others; almost all should be treated as if the y were malignant.
• Malignant CMs may spread to other parts of the body, commonly to the liver (90%); 25- 30% within 5 years.

Observation

•Patients with a clinical diagnosis of small malignant melanoma of the uveal are candidates for plaques brachytherapy

Management of Ocular Melanoma

• Advances in radiation therapy like Charged Particle Irradiation, Linac-based RT and Gamma Knife SRS/SRT have significantly decreased the number of patients treated by enucleation in developed countries

• The Collaborative Ocular Melanoma Study (COMS) was initiated in 1986 to conduct a randomized, controlled clinical trial in 40 North American clinical centers to evaluate therapeutic interventions for patients who had choroidal melanoma.

COMS clinical trials

COMS aimed at determining which of the two choroidal melanoma alternative therapies, namely enucleation and plaque brachytherapy a) results in longer survival of patients and, b) if two are similar, to determine which offers the patient the longer cancer-free life and the

better prognosis for vision overall. All patients w ere followed up from

5 to 15 years at scheduled examinations for metastasis or another cancer or until death.

Choroidal Melanoma Cumulative Rates of Death by Time since Enrollment. Medium size tumors, 12 years follow up

Cumulative percentage of patients dead by time since enrollment for treatment arms I125 brachytherapy [n=657] and enucleation [n=660] from 1986 to July 31, 2003.

Choroidal Melanoma Treatment

• The primary aim of Choroidal Melanoma treatment

-Safely destroy the tumour

-Prevent metastatic spread

-Promote survival

•The secondary aim of treatment

-Conservation of the eye

- Avoiding ocular morbidity

- Retaining vision

First Linac-based Eye Site including Choroidal Melanoma SRS/SRT treatment at PMH was in October 1998, where to date 164 treatments of this kind have been performed.

Soil Pollution In Tehran

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Abstract: Urban environments have been mentioned as environmental pollution sources because of the human concentration in urban areas. The main purpose of this study is classification of natural and artificial pollution in the region and also comparing the pollution of superficial and deep soil. In rural environments where the impact of industrial processes is lower, natural properties of the soil could be observed. In contrast, in urban environments the effects of human activities in soil contamination is more. The aim of this project is to design a system of geochemical data to identify €geochemistry such as urban geochemical studies of Tehran project may be used to determine soil quality and is efficient in urban development program. In this project, 60 surface soil samples (15-0cm) and 60 deep soil samples (20-30 cm) were collected to determine the geochemical background level from sampling sites. All the samples were analyzed in Applied Research Center of Geological Survey of Iran by ICP-MS to measure the elemental concentration.

To determine the effect of anthropogenic and geogenic factors on soil pollution the elemental values of superficial samples were compared with deep soils and the amount of 28 elements were measured. Since the amount of cadmium and Lead in the soil samples of Tehran is high and transportation system is considered as one of the main sources of heavy metal pollution in urban environments, it has been concluded that increase of these toxic elements has been caused by anthropogenic activities. Urban soil pollution level calculated using geo-accumulation index, (Igeo), pollution index (PI) and enrichment factor (Ef) showed the moderate pollution of barium, cadmium, molybdenum, rubidium, tin, strontium, thorium, uranium, tungsten and zinc in Tehran urban soil.

Lead, antimony, bismuth and arsenic pollution levels are high and the rest of the elements show low levels of contamination. Interpretation of pollution factor index map showed that anthropogenic activities have caused the accumulation of heavy metals in soil of Tehran.

Key Words : Pollution ;Urban Geochemistry ;Health ;Guidelines ;Igeo ;Enrich-Factor; Zd

Interventional Therapies in Cancer Pain Management

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Chronic pain is experienced by 30 to 50 percent of cancer patients undergoing active antineoplastic therapy. Treatment guidelines for cancer pain emphasize the primary role of systemic opioid therapy. However, despite optimization of opioid therapy and the use of analgesic adjuvants, a substantial number of patients with cancer pain do not obtain satisfactory relief with first-line analgesic therapy. When effective pain relief cannot be achieved through pharmacologic means, nonpharmacologic approaches offer an important alternative.

The most important of these nonpharmacologic approaches are the so-called "interventional" pain management strategies. Interventional therapies include injections, non-neurolytic and neurolytic nerve blocks, and implanted neurostimulation and neuraxial drug infusion techniques.

Ideally, all patients with cancer pain that does not respond promptly to systemic pharmacotherapy should have access to a specialist who can assess the appropriateness of interventional treatments. These therapies are implemented by professionals who have received specialized training.

This topic review will cover interventional therapies that are performed for controlling refractory cancer pain.

The relationship between Quality of life and demographic data of patients with advanced cancer in palliative care

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* This research was supported by ALA cancer prevention and control center.

Introduction palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, such as cancer. It can be possible through the prevention and relief of physical, psychosocial and spiritual suffering by means of early identification and impeccable assessment. this study aimed to investigate quality of life and demographic data in patients with advanced cancer under treatment in palliative care medicine.

Methods In a descriptive and cross-sectional study, Statistical population was all the advanced cancer patients who had referred to palliative care ward in Firouzgar hospital between march and July 2016, out of them 150 persons were elected as members of sample group by making use of convenience sampling method. " McGill Quality of Life" and Demographic information Questionnaire were applied to collect data and these data were analyzed by SPSS 19. software.

Results Findings indicated that there was significant association (P<0/05) between quality of life in physical symptoms or physical problems and tumor metastasis. Also psychological QOL Was significantly associated with economic status. However, other demographic variables had not significant relationship with quality of life in this patients.

Conclusion These findings underscore that the impact of individual differences in the quality of life of patients in the last stages decreases. As a result, caring approaches with a special focus on alleviating physical symptoms of metastatic cancer and lowering the ongoing costs of treatment could help to improve the quality of life of patients with advanced cancer, thus achieving simultaneously the goal of palliative care.

Keywords Palliative care, Advanced cancer, Quality of life

A single lateral incision for all thyroid neoplasms- Horizontal lateral thyroidectomy, Thomas'technique, the "minimally invasive open thyroidectomy" a novel approach.

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Background: Kochers' thyroidectomy is the standard procedure for treating thyroid neoplasm. Endoscopic /robotic techniques are described. Horizontal lateral thyroidectomy, minimally invasive open technique (Thomas' Technique) based on 3 D digital volumetric interactive anatomy is a novel concept in minimizing reported complications to the Superior and Recurrent Laryngeal nerves, Parathyroids and vascular pedicles. All these vital structures being lateral and posterior to the gland, a lateral approach is more logical.

Objectives: This prospective study was initiated to evaluate the use of 3-D digital volumetric interactive anatomy for developing new surgical approach.
Methods: Since the pilot study conducted in August 2008 on 25 patients to test the new hypothesis showed superior results than historic controls, it was decided to recruit patients for the next 5 years.

Out of 566 subjects, seen from August 2008 August 2013,462 were females and 104 males.330 had cancer and 136 benign diseases. Out of136 benign cases 96 were MNGs, 31 adenomas and 9 cysts. Out of 330 cancer cases 230 were papillary,60 follicular,35 mixed type and 5 were medullary cancers.18 patients had intra thorasic extensions. Using single ipsilateral incision,90 total thyroidectomies for benign and 396 for cancers, without or with bilateral or unilateral nodal disease were done. Bilateral approach used in 20cases of papillary carcinomas with extensive bilateral nodal disease and in 8 cases of bilateral intra thorasic extensions. Central compartment clearance was done in indicated cases.Parathyroids were dissected pulverized and injected into Sternocleidomastoid muscle when ever its vascularity was questionable.

Results: Average blood loss was 10-15 ml and hospital stay 24 hrs. There were no nerve injuries. Parathyroid deficiency was reported in 20/566, 17 had temporary

and 3 permanent. 546/566 were performed with single lateral incision. Lateral scar disappeared within 3-6 months, all the sensations returned to normal leading to excellent cosmesis and quality of life.

Conclusion:

Minimally invasive open single horizontal lateral incision Thyroidectomy,–"Thomas technique", is a novel method applicable for all thyroid neoplasm. Ligation of vascular pedicles upfront leading to an avascular gland makes this approach "bloodless". Better accessibility and direct vision of nerves, prevents injury to nerve and parathyroids. facilitates lymph adenectomy better, safest for very large thyroid swellings and intra thoracic extensions. Complications described in the literature are minimized, cosmetic results much superior.

Blood Disorders Immunotherapy by Vaccination Based on DC

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Introduction: Development of an effective cancer vaccine requires tumor antigen presenting for stimulation of T-cells activity and simultaneous reversal of immune system suppressor in specified environment of the patient. Cancer cells specific antigens include the strongest antigens in the whole tumor and are an ideal target for vaccination treatments. Nonetheless, they should be limited to tumor cells so that autoimmune disease does not occur. Antigens targeted by peptide vaccines may lead to tolerance in patients. The fundamental mechanism for antigen presentation by DCs includes trapping of the antigens, processing them into peptides and presenting them on MHC I and II to T-lymphocytes. Antigen transportation methods through binding of tumor, DC and apoptotic bodies, are independent of HLA and use the whole immunopeptidome of tumor cells.

Materials and Methods during this research and search in scientific-medical databases, Some of related articles were studied and evaluated.

ResultsTherefore peptide vaccination with LiTAAs/LiTAPs may be promising of a new peptide vaccination method because of extensive and repeated expression of antigen-peptide on the target cell population. Clinical trial proved lack of toxicity, immunogenicity and also clinical effects of DCs transport method by RNA coding WT-1 for treating the patients affected by AML who are in high risk for disease relapse after primary chemotherapy.In vivo targeting of DC through DC-SIGN provides a promising vaccine platform for inducing strong immune responses against cancer and infectious disease agents.

DiscussionIn current clinical studies with new generation of DC vaccines, or nucleic acid coding leukemia antigens transferred by DCs through electroporation or nucleic acids coding leukemia antigens transferred to DCs by viral carriers have been applied by scientists and doctors in the field of DC vaccines.

conclusion

Using the suppressors in combination with DC vaccination, forms an interesting treatment method. Dendritic cells vaccine design is capable of affecting stable responses with the least toxicity.

9-tBAP from spiroaminopyrimidones family decreases cell proliferation by induction of apoptosis in NB4, acute promyelocytic leukemia cells

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Purpose Recently, we have reported that spiroaminopyrimidone analogues inhibited the growth of K562 human chronic myelogenous leukemia cells. In the present study, we evaluated cytotoxic effects of the active compound, 2, 4-Diamino-1, 3-diazaspiro [5.5]-9-tert-butyl-2, 4-diene- 5- carbonitril (9-tBAP) from this family that most potently inhibited the proliferation of the NB4 acute promyelocytic leukemia cells through induction of apoptosis.

Methods The NB4 cells were cultured in the presence of various concentrations (10-150 μM) of the compound for 3 days and cell viability was determined by MTT assay. Induction of apoptosis was qualitatively assayed by Hoechst 33342 staining, as well as quantitatively by Annexin V/PI double staining.

Results 9-tBAP decreases cell proliferation of the NB4 cells in a dose- and time-dependent manner. The IC50 value following 72 h exposure was found to be 30 μM for the cells. The results of fluorescence microscopy and flow cytometry indicated that the 9-tBAP induced apoptosis in NB4 cells.

Conclusion Taken together, these results suggest that this compound with significant anticancer activity can be proposed as effective agents for further investigation in the future.

Kew words 9-tBAP, Apoptosis, Leukemia, NB4 cells

"Investigation of the mechanisms involved in the cytotoxic effect of Withaferin A in glioblastoma tumor cells"

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Objective Previous studies have shown that withaferin A (WA), a steroidal lactone, has anti-angiogenic, anti-proliferative and pro-apoptotic properties against tumor cells. This study aimed to investigate the key mechanisms which underlie these properties in glioblastoma (GMB) tumor cells.

Methods Two GBM cell lines were cultured. WA-containing media was added to GBM cells to analyze cell viability by MTS assay, cell cycle by flowcytometry and to detect the effect of WA on signaling pathways and heat shock proteins by western blotting.

Results Both intrinsic and extrinsic apoptotic pathways were induced by WA to inhibit proliferation and increasing cell death. These properties were accompanied by inhibition of Akt/mTOR signaling pathway and increased activation of AMPKα and tuberin/TSC2 which is a tumor suppressor. Furthermore, WA induced a heat shock stress response through HSP27, HSP32, and HSP70 upregulation and HSF1 downregulation.

Conclusion In summary, WA may be considered as a potential chemotherapeutic candidate in the treatment of glioblastoma. Further studies to evaluate this therapeutic effect seems necessary.

Keywords Glioblastoma, Withaferin A, Heat shock response

Evaluating the expression alteration of a novel splice variant of TCF19 in tumor and marginal tissue samples of the Bladder

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Bladder cancer (BC) is the most common cancer of the urinary tract with ~380,000 new cases and ~150,000 deaths per year worldwide. Due to high recurrence rates, intensive surveillance strategies, and expensive treatment costs, the management of BC contributes significantly to medical costs. Improved treatment requires detailed understand¬ing of urothelial carcinoma pathogenesis and molecu¬lar biology.

In recent years, numerous molecular markers for BC have been identified and investigated. In this study, we focused on a novel TCF19 (Transcription Factor 19) spliced variant which has three Overlapping exons involving two functionally distinct genes, the OCT4 (also known as POU5F1) and the TCF19 genes which are located on chromosome 6, approximately 0.6 kb apart from each other. OCT4, an embryonic stem cell marker, is highly expressed in BC.

TCF19 gene encodes a protein that contains a PHD-type zinc finger domain and likely functions as a transcription factor. To evaluate the expression alteration of TCF19 gene in tumor and normal tissue samples of the Bladder, We designed specific primers over exon boundaries in order to amplify the new splice variant of TCF19. After RNA extraction and cDNA synthesis, Real-Time PCR was performed. PCR product was validated by sequencing the fragment.

Our data revealed that the novel splice variant of TCF19 was down-regulated in tumor tissues. However, further studies with more sample size are needed to be done.

Keywords Bladder Cancer, TCF19, Oct4, Diagnostic markers, Real-Time PCR.

Clinicopathological features and prognostic roles of KRAS mutations in colorectal cancer

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Background Colorectal cancer (CRC) is one of the most common cancers worldwide and Iran. In patients with CRC, anti-Epidermal Growth Factor Receptor (EGFR) therapy is known to be effective only in cases with a wild type KRAS gene status. But KRAS mutations in colorectal cancer cause resistance to anti-EGFR. So it can be considered as a prognostic factors of EGFR pathway activation status. The most hot spot of the gene (up to 90%) is located in codon 12 and codon 13 of exons 2.

Materials and Methods This study was performed on 52 patients with colorectal cancer who referred to the AL-Zahra hospital in Esfahan. DNA extracted from fresh tumor biopsies and normal tissues, the sequence of exon 2 KRAS gene were amplified by PCR and subsequent sequenced the KRAS gene for detecting the mutation points. After mutation analysis, the clinical and pathological associations of mutant genes were assessed.

Results In this study the prevalence of KRAS gene mutation was 15/4% (8 out of 52 cases) including 6 mutations in codon 12(75%) and 2 mutation in codon 13(25%). Common tumor sites were rectum and rectosigmoid. The mean age for patients were 61/2 years. There was no significant relationship between the mutation and clinical and pathological aspects of the disease.

Conclusions The result imply that the typing of KRAS mutations could be used as molecular biomarker, for prediction lack of response to anti-EGFR monoclonal antibodies.

Key words colorectal cancer, KRAS, mutation, anti-EGFR

Bringing Systems Biology to Cancer: Emerging Concepts and Clinical Applications

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Background Cancer has been known as a complex, systematic and hard treated disease which involving disruption of multiple essential pathways in cell processes such as death, proliferation, differentiation and migration. The complexity of cancer arises from the complexity of cell signaling pathways. Cell signaling networks are greatly dynamic. They establish new specific interactions after rewiring circuits within the cancer cells that allow them to be alive in the presence of the perturbation and dysregulations. The main challenges related to cancer treatment are tissue complexity, cell heterogeneity, targeted therapy and drug resistance which limit the efficacy of many targeted therapeutics in use or in clinical trials.

Cancer systems biology is a new clown filed representing the application of systems biology approaches to the analysis of perturbations and disruptions of cell signaling networks in tumor cells during carcinogenesis. It develops predictive models that can be useful for scientists and clinicians to design new therapies and drugs. This article is an overview of systems biology applications for understanding and unwinding of cancer complexity.

Methods The original articles related to cancer systems biology were found by search in PubMed, Scopus, Springer, Sciencediret and Web of Scientific databases with an emphasis on literature published in the recent years.

Results and Conclusion Cancer systems biology has shown a great potential and it will develop the models to uncover new signaling pathways generated during carcinogenesis. Systems biology approaches will assist clinicians and scientist to overcome the problems related to cancer therapy.

Keywords cancer, cancer systems biology, signaling networks

Investigation of genetic changes in M.S Patients in relation to developing Cancer.

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SummaryM.S is an autoimmune disease of the central nervous system, where the immune system attacks the protective myelin sheath around the nerve fibres and creates plaques in the brain and spinal cord. There have not been that many publications with regards to the relation between M.S and Cancer, however there has been an association between brain tumour, breast cancer, and nasopharyngeal lymphoma and M.S.

Since patients with M.S use various medication therapies, there may be a link between the use of these medications in M.S patients and developing cancer. For instance according to the study published on May 11, 2016 in the journal of Neurology, the use of Mitoxantrone in M.S patients may be associated with an increased risk of colorectal cancer. Based on the investigations that have already taken place, the following polymorphisms on following genes have been identified. These variations include gene rs10735781 (in EVI5), rs11164838 (in FAM69A), rs3135388 (in HLA), rs 6897932 (in IL7RA), rs10975200 (in ANKRD15), rs12487066 (in CBLB), rs12044852 (in CD58), rs1321172 (in PDE4B) and rs10492972 (in KIF1B), which have been different from Ms patients of healthy individuals. Our aim is to investigate which of these polymorphisms can predict the development of cancer in patients with M.S.

Materials and Methods In this research the sample blood has been examined from people with M.S and healthy individuals, using the tetra-arms PCR and sequencing technique methods.

Results and Discussion Our first results indicate that there is not a direct relation between these polymorphisms and developing cancer. However during this investigation we had come across various patients with M.S who also developed cancer. Hence further investigations are needed to see if there is a correlation between different types of cancer and these polymorphism as well as finding whether these gene polymorphisms and which one of them will reduce the chance of developing cancer.

Keywords cancer, multiple sclerosis, polymorphism.

Retinoic acid-related orphan receptor alpha (RORA) variants and risk of breast cancer

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Breast cancer is the most common type of cancer and the second leading cause of cancer death in females. Despite numerous studies in this field, the etiology and clinical behavior of breast tumors have not been understood yet.

Retinoid orphan nuclear receptor alpha (RORA) is a member of the orphan nuclear factor family involved in the regulation of lipid and steroid metabolism, immune response and circadian rhythms. Recent evidences support its role as a tumor suppressor gene. In the present study, we evaluated the association between two functional polymorphisms in RORA (rs11639084 and rs4774388) and breast cancer risk in a population of 122 Iranian breast cancer patients as well as 200 healthy subjects by means of tetra primer-amplification refractory mutation system-PCR (4P-ARMS-PCR) method. The rs4774388 has been shown to be associated with breast cancer risk in recessive inheritance model (OR (95% CI= 0.51 (0.26-0.97) and P=0.041). However, the allele and genotype frequencies of rs11639084 were not different in patients and control (P>0.05).

Haplotype analysis revealed no significant association of any estimated block of rs11639084/rs4774388 in breast cancer patients versus healthy controls. The results of this study support a putative role for RORA in breast cancer pathogenesis.

Key words RORA, breast cancer, polymorphism

Kids' Skills and Improvement of the Quality of Life in Children with cancer : a case report

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Background A child with cancer, who returns to school following the initial treatment and physician instruction, has specific needs. Meeting these needs depends on certain skills to be learned by child with cancer. This case report aims to show mental health professionals how the psychological approach of "Kids' Skills" can help children with cancer, who return to school, to improve their quality of lives through learning specific skills.

Method Kids' Skills is a step-by-step method to help children overcome behavioral and emotional problems by learning skills. The approach has been developed by Psychiatrist Ben Furman at Helsinki Brief Therapy Institute. The following case report illustrates the application of key steps of Kids' Skills for teaching the skill to a child with cancer.

Case report Parya has leukemia. After undergoing treatment in hospital, she now returns to school. Parya is a first grade student. From the Pediatric Quality of Life Inventory (PedsQL™ 4.0), Parya's social function is not satisfaction. She has trouble getting along with her classmates and they do not want to be her friends. Therefore, Parya, along with her teacher visit the "Kids Skills and Health Room" for learning the skill to improve her social function and subsequently her quality of life. The child counselor (Kids' Skills instructor) and Parya agree to learn the skill of "helping classmate". The Kids' Skills instructor asks Parya to tell how she likes to help her classmates.

Parya likes to help absent classmates in doing their homework. In the next session, the Kids' Skills instructor in cooperation with Parya's teacher uses a role playing in the Kids Skills and Health Room to show Parya how she can assist her classmate in reading the book, pasting the photo, and completing sentences. The Kids' Skills instructor, then, asks Parya to play the learned behavioral pattern. Before practicing this skill, Parya is asked to choose a reminder as "SpongeBob" which is her favorite animated character.
To practice the skill, Parya is also encouraged to show the learned "helping classmate" process to her supporters at home and school - mother and teacher - according

to a regular schedule. When Parya masters this behavior, the teacher makes a plan for Parya to start giving help to her classmates. After three weeks, the teacher's reports reflect the improvement of Parya's social function. Due to this achievement, a celebration is held in the Kids Skills and Health Room in honor of Parya. Finally, the Kids' Skills instructor makes a plan with Parya, to teach the same skill to another student who also needs to build a better relationship with her classmates.

Conclusion Mental health professionals who work with children with cancer can use the psychological approach of Kids' Skills to help them satisfy their special needs, and improve their quality of life through skill learning when they want to return to school. Finding the skill behind the need is very important.

Hence, the mental health professionals hold a meeting with parents and teachers of children with cancer. After consulting and reviewing the completed Pediatric Quality of Life Inventory, the professionals identify the specific needs of children and convert them into appropriate skills to learn. These skills are different in terms of individual differences in children with cancer and include a range of skills such as "becoming happy", "liking the school", "being with friends", "asking for help", and "getting along with teacher".

Keywords child with cancer, Kids' Skills, need, quality of life, skill.

Study of miR-103 as a non-invasive biomarker in the plasma of patients with gastric cancer

Background Gastric cancer (GC) is the fourth human malignant disease and the second leading cause of cancer death in the world. This cancer is an asymptomatic disease at early stages and so is often detected at advanced stage. Circulating microRNAs play an important role in diagnosis and assessment of patients with cancer and therefore discovery of these molecules is promising to use of them as non-invasive biomarkers in the screening of cancer patients. In the present study, we analyzed the expression of miR-103 in plasma of volunteers with GC and healthy individuals to investigate function of this molecule as a non-invasive diagnostic biomarker.

Materials and Methods In this study Plasma samples were collected from 80 volunteers including 40 patients with GC and 40 healthy individuals. The expression level of the miR-103 molecule was detected by Quantitative Real-time PCR analyses, with SNORD47 as the reference gene.

Results Result of the present study indicated that expression of miR-103 was increased in plasma of patients with GC. (p=0.003)

Conclusion Based on the results of this study, the miR-103 molecule has a increased expression levels in plasma samples of patients with gastric cancer in comparison to normal individuals and seems can be used as a useful non-invasive biomarker for early diagnosis of GC in the future.

Keywords Gastric cancer, miRNAs, biomarkers, plasma

New mutations in mitochondrial NADH dehydrogenase sub-unit-4 (ND4) in Iranian women breast cancer

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Introduction breast cancer is the second reason of death in women population all around the world.So that in Iran one out of every eight women will be diagnosed with breast cancer. So find some clinical markers for predict cancer in early stage is too important. In past 20 years a lot ofstudieshas been done to discover new prognostic markers.There are many causes of cancer that mutations in the mitochondrial genome is one of the reasons that has been observed in most breast cancer studies.

Materialsandmethods DNA was extracted from 60 patient and 28 normal formalin fixed paraffin embedded tissue. Then mitochondrial ND4 region was amplified by PCR and checked in 1.5%agarose gels. SSCP analysis used to investigate different conformation between normal and cancer sample. Each sample had a different conformation were sequenced.

Result in this study mtND4 region (11646 -11860) in total 24ssuspicious patientshas been sequenced. We classified mutations in two class. G11719Awas classification inpolymorphic groupand C11716G, C11702Tand A11812Gwas classified in rare group. G11719A and A11812G were not changed the amino acid codons and reported before, but others changed amino acids in protein and not reported before.

Discussion Due to the development rate of breast cancer andreduce age of susceptibilityin Iran, diagnosis the cancer in the early stage can reduce the mortality rate so find new marker was so important. According to the role of mitochondria in electron transport chain, mutations in the genes coding these proteins such ND4 can damage the electron transport chain and produce free oxygen, which is one of the major causes of cancer.So identification of mutations in mitochondria can be one of the markers of prognosis.

Key word breast cancer, mitochondria, mutation

Silencing of cancerous Inhibitor of PP2A Inhibits proliferation and Promotes Apoptosis in human prostate cancer

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BackgroundProstate cancer is the second-leading cause ofcancer-related deaths and most prevalent type of non-cutaneous malignancy in men. So, there is a strong need to identify critical targets in prostate cancer neoplasia and progression. Cancerous inhibitor of PP2A (CIP2A) is a human oncoprotein that regulates cancer cell viability and anchorage-independent growth. This study aimed toinvestigate the effect of silencing CIP2A in the human prostate cancer cell line (Pc-3).

Material and Methods CIP2A was silenced in the human prostate cancer cells (Pc3) bytransfection of short interfering RNA and cell proliferation and apoptosis were evaluated by MTT assay andflow-cytometry.

Results CIP2A knockdown significantly inhibited cell growth and increased apoptosisin Pc3 cells.

Discussion and Conclusion These results indicate that CIP2A modulates Pc3 cells proliferation andapoptosis and suggest that it can be a selective drug target for the treatment of prostate cancer.

Key words Prostate cancer, Cancerous inhibitor of proteinphosphatase 2A, Small interfering RNA, Proliferation

The synergistic anti-survival effect of astaxanthin treatment and glutathione peroxidase-1 overexpression on breast cancer cell lines.

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Astaxanthin (ASTZ) as a member of flavonoids belongs to Xanthophylls family. Due to its high antioxidant effects, ASTZ is is reportedly an anti-cancer compound that affects cancer cell survival and proliferation. Glutathione peroxidase 1(GPX-1) is a well-known antioxidant enzyme acting against oxidative stress. Loss of heterozygocity and nucleotide olymorphisms in the structure of GPX-1 gene have been reported in human breast tumor samples that imply the anti-cancer role of wild-type GPX-1 molecule.

In this study, we investigated the combined anti-cancer effects of ASTZ and GPX-1 in breast cancer cell lines. Primarily, the lethal dose of ASTZ in the cells was determined using MTT assay. Next, we generated recombinant lentiviruses carrying human GPX-1 expression cassette. The cancer cells under study were transduced with concentrated stocks of the virus to overexpress GPX-1.

The transduced cells were then treated with the LD50 of ASTZ and the impact of its treatment on cell survival was assayed. Our preliminary data indicate that the two compounds synergize in inducing breast cancer cell death so that the rate of cell death was more significantly higher than when ASTZ was applied alone. We are now investigating changes in expression levels of pro- and anti-apoptotic genes in treated and co-treated cells to elucidate the molecular mechanisms of this synergy.

Key words breast cancer, Astaxanthin, glutathione peroxidase-1, oxidative stress

Study of Cofilin1 gene expression in colorectal cancer

samira mosavi

Background Colorectal cancer(CRC) is the third and fourthmost frequently diagnosed cancer in women and men,respectively, and the fourth most common cause of cancer death. worldwide.Approximately, 1.4 million people are diagnosed with CRC and 700,000 die of CRC annually.
The ability of cancer cells to migrate and relocate to the creation of secondary tumors elsewhere in the body.Cofilin 1 is one of the important proteins responsible for cell migration process plays a key role in the dynamics of actin filaments .
Microtubule actin are responsible for forming cells And in cytokinesis and cell migration by creating redundancies and false legs which are associated with polymerization and they are essential Dplymryzation.
Cofilin 1 one except the actin-binding proteins that how to locate and polymerization of actin monomers and Dplymryzation control.
The purpose of this study, a case-control study examined changes in Cofilin 1 gene expression in patients with colorectal cancer.

Materials and Methods RNA samples from tumor tissue and normal tissue surrounding the tumor was extracted in 30 patients with colorectal cancer. Then Cofilin 1 gene expression using molecular techniques were studied real-time polymerase chain reaction(qRT-PCR). By using statistical methods between the level of mRNA expression in normal and pathological state was evaluated.

Results n this study,Cofilin 1 genes in cancerous tissue compared to normal tissue around the tumor, has been shown to increase the expression. The Meaningful relationship between this gene and colorectal cancer was observed(P.V=0/0140).

Conclusion Therefore, cofilin 1 may serve as candidates for clinically useful biomarkers or therapeutic targets for CRC.

Palliative Medicine in Iran

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It is well known that palliative care is a necessity in cancer patients, as early on as the time of diagnosis. Palliative care for cancer patients is rather new in Iran and has a history of less than 5 years. Here we give an overview on the status of palliative care in Iran. We also present the demographics of our patients in the first and largest palliative care unit over the last two years.

Iran has a population of around 80 million people and, according to the official cancer registry, a yearly cancer incidence of around 100 thousand. We currently have around 8 active palliative care units for cancer patients and one palliative care ward in Iran, all run by charities. In these palliative care units, we have oncologists, palliative care specialists, pain specialists, psychologists, spiritual care specialists, social workers and dieticians. A total number of 3677 patients, ages between 16 and 94 (Median 61),of whom 3277 (89%) with a similar age distribution had a cancer diagnosis were referred to our palliative care unit in Firoozgar Hospital, which is run by the Ala Charity, in Tehran in the last two years. 1770 female (54%) and 1457 male (46%) cancer patients were referred. A number of 388 (12%) patients had breast cancer,339 (10%) had hematologic malignancies, 312 (10%) had esophageal or gastric cancer,311 (10%) had colorectal cancer, 105 (3%) had a cancer of the CNS, 101 (3%) had lymphoma, 93 (3%) had renal cancer, 87 patients (3%) had ovarian cancer, 81 (2%) had lung cancer, 54 patients (2%) had prostate cancer and50 (2%) had pancreatic cancer. The other 40% of the cancer patients had either lessfrequent cancers or their exact cancer site was not recorded.

Iran, like many other countries, needs many more palliative care units. As palliative medicine is not financially lucrative, charities play a major role in setting up, maintaining and expanding these units.

Genetic variants of ANRIL gene in Iranian breast cancer patients

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Objective The long non-coding RNA ANRIL (antisense noncoding RNA in the INK4 locus) expression and variants have been shown to be associated with several human diseases including cancers. The aim of this study was to evaluate the association of ANRIL variants with breast cancer susceptibility in Iranian patients.

Materials and Methods We analyzed rs1333045, rs4977574, rs1333048 and rs10757278 genotypes in 122 breast cancer patients as well as 200 normal age-matched subjects by means of single specific primer (SSP)-PCR method.

Results In rs1333045, TT genotype was significantly more prevalent among patients than controls (P=0.036). In addition, several haplotypes within this region have been shown to be associated with breast cancer susceptibility in the analyzed population.

Conclusion These results imply that breast cancer risk is significantly associated with ANRIL polymorphism and haplotypes. Further researches are needed to evaluate ANRIL expression in different haplotypes.

Cancer Induced Infertility and the Role of L-carnitine; a Review for Possible Future Clinical Applications

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Introduction Epididymis is highly rich by L-carnitine (LC) which serves as a protectant agent for the oxidation process and has roles in energy production and improvement in motility.
Progress in cancer survivor beside dramatic increase in cancer prevalence, has led to universal interest for fertility preservation in cancer survival patients.
Recently, a trend is established for evaluating the effects of LC and its ester supplementation on radio and chemotherapy induced gonadal injury.

Method All available in vitro and in vivo studies, clinical trials in English language that examined the protective effects of L-carnitine and its derivatives on cancer induced infertility were reviewed. This article focused on chemotherapy induced infertility, mechanisms of involved and the possible protective role of LC.
We decided to review all document in this era in order to take advantage of potential clinical trials.

Conclusion According to animal studies, administration of LC could show a promising protective data but before any judgment, further well-controlled, carefully designed, larger-scale clinical studies are desirable and matter of concern in future studies.

Key Words L-carnitine, Infertility, Chemotherapy, Cancer, Gonadotoxicity

the effectiveness of mindfulness training on family functions in women with breast cancer.

Maryam Haji seyed sadeghi, Fariba Zarani. Mahmood Heidari

Introduction Breast cancer is reported to be the most commonly diagnosed cancer among Iranian female population. This disease also negatively effects the mental health of people involved. One the important dimensions that can be damaged is their family functions which reduce the quality of life and well-being levels in patients. Researches indicate that diagnose and treatment of breast cancer have negatively effects on perform a role and relations with other in patients and make women experience stressful conditions. So interventions that can promote the patient's mental health always are important for researchers. The purpose of this study was to determine the effectiveness of training mindfulness on family functions amongst women suffering breast cancer.

Method To gather information, at first 43 patients were interviewed and consequently 29 of them with average mindfulness level were selected as research sample and were drawn and assigned to experimental and control groups. The experimental group underwent 6 sessions of training mindfulness and the control group received supportive counseling over the same period. Mindfulness attention-awareness scales (MAAS) and Family assessment devise (FAD) were administrated before and after training sessions and 3 months later.
Include criteria range of age between 35-55, having the average level of mindfulness, married, receiving chemotherapy weekly and having at least diploma degree.

Exclude criteria absent in sessions, having another physical disease expect breast cancer and also having mental chronic illness.

Result and conclusion The findings indicate the women with breast cancer have undesirable family functions (in all dimensions). Mixed ANOVA analysis indicated that training mindfulness has been effective in the promotion of family function in patients. And also Three-month follow-up indicated that the results remained stable. Mindfulness trainings help patients to experience the better relationship, high emotional empathy and more intimacy. In addition they can make desirable family functions. Based on the results, this training can be used and effectiveness in clinical setting to help the improvement family in women with breast cancer.

Mechanism of telomeric DNA G-Quadruplex ligands and their effects on cancer cells

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Background and Objective Telomerase is an RNA-dependent DNA polymerase with ribonucleoprotein structure. This enzyme repair telomeres shortening progresses in the cell divisions. The purpose of this review is study mechanism of telomerase inhibition by small molecule interactions with G-quadruplex structure and their effects on cancer cells and merit of this approach to introduce a suitable therapeutic strategy.

Search Method Currently, different mechanisms of telomerase inhibition were suggested, including telomere inhibition with Azido thymidine (AZT), RNAi and GRN antisense, or immunotherapy against telomerase with hTERT peptide by activation of T lymphocyte. The recent research suggests that the use of G-quadruplex interactive agents (QIAs) such as cationic porphyrins stabilize telomeric G-quadruplex DNA and thereby decrease telomerase activity to 50%.

Findings a porphyrin derivative, TMPyP4, inhibits telomerase activity and arrest cell cycle in G2-M phase on cancerous cells, in the low and nontoxic concentration. X-ray crystal structure shows TMPyP4 is a good fit for stacking with G-tetrads, in human telomeric G-quadruplex DNA, d(AG3[T2AG3]3) to form the stabilized structure of GQ.

Conclusion The previous reported studies have shown that the elevated levels of telomerase activity have been detected in more than 85% of cancerous cells which have led to tumorigenesis and immortality. For this reason, tumors, especially, gastrointestinal cancers are dependent on telomerase as a mechanism of telomere maintenance, then they are potential targets for anticancer drugs development and cancer therapy.

Key words G-Quadruplex, telomerase, anticancer drug, TMPyP4, Telomere Maintenance, cancer cell

The Impact of Sucking Bits of Ice Containing Minton Nausea and Vomiting During Chemotherapy in Patients with Breast Cancer

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Background Cancer remains as one of the most challenging diseases to be tackled in today's world. Improving treatment methods can contribute to fighting cancer better than before. Breast cancer is one of the most common and significant diseases which problematizes a large number of women. Various methods are used in order to curebreast cancer, including surgery, radiotherapy and chemotherapy. Chemotherapy is one of the oldest and most common treatments forcancer. Nausea and vomiting are the most common side effects of chemotherapy. Due to its limited effect and the risk of anti-nausea medications, one of the criticaland relatively safe measures is to use CAM (Complementary and Alternative Medicine). Ice therapy is one of the methods in this regard.

Materials and Methodology This studyis a clinical trial in which 60 patients were divided randomly into intervention and control groups (each group containing 30 people) based on inclusion criteria. In the control and experimental groups, 30 cc tap water and 30 cc ice containing mint extract were used, respectively, during chemotherapy. First, in both groups, nausea was examined through VAS, and vomiting was examinedthroughthe number of incidences. Atthe end of chemotherapy, nausea and vomiting levels were recorded in both groups. Finally,the data obtained (nausea and vomiting levels)from both groups were compared.

Results The results showed thatthe level of nauseabecame significantly lower in the intervention group compared to the same rate in control group (P-value 0.022), but the difference in the number of vomiting incidences in the intervention group and the control group was not significant (P -value 0.770).

Conclusion According to the results, the use of ice containing mintis effective in healing feelings of nausea caused by chemotherapy, while it is not effective in treatingvomiting caused by chemotherapy.

Key word Ice,Mint,Nausea,Vomiting,Chemotherapy,Breast Cancer

The evaluation of sulforaphane effect on breast cancer cell line

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Phytochemicals have been shown to have anti-cancer components. Cruciferous vegetables such as cabbage and broccoli have chemo-preventive activity in cancer. Sulforaphane (SFN) is the most widely investigated isothiocyanate from the crucifers and it is the most active compound that has anticancer properties in animals. We investigated lethal effect of SFN on Skbr3 cell line which has her2+ profile of tyrosine kinase receptor. Primarily, we determined the lethal dose (LD50) of SFN using MTT viability assay. Next, changes in expression levels of the autophagic and apoptotic genes were tested by RT PCR. Our preliminary data indicates the potential of SFN to have lethal effects on our cancer cell lines. In parallel, over expression of anti-apoptotic genes and down regulation of apoptotic genes were detected. We are fine tuning to find the most effective dose of SFN in inducing apoptosis of cancer cells by inducing pro-apoptotic pathways and inhibiting anti-apoptotic ones.

Key words Sulforaphane, Breast cancer cell line, Apoptotic, autophagic

Glioblastoma treatment: Molecular challenges

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Introduction The new challenges in cancer biology are the move towards morphological classification of tumors based on the molecular criteria and this is considered a major revolution in the treatment of cancers. Especially in the most malignant brain tumor, glioblastoma, an extensive progress has been made. Currently, the common and standard treatments for glioblastoma include Surgery, Chemotherapy, and Radiotherapy but because of the therapeutic limitations and side effects caused by the use of chemotherapy drugs, it seems necessary to study in the field of molecular genetics to diagnose and treatment of glioblastoma to increase the patient 's life expectancy.

Methods This paper is provided using review and analysis of the research.We performed literature searches with Pubmed and Google scholar.

Results The present study was aimed to investigate the GBM 's molecular subtypes and effective genes as well as the signaling pathway in the growth of tumor and metastasis. P53, RB, and RTK are the most important pathways that the pivotal role of them has been studied in advancing the glioblastoma thus it has been tried to study on the genes pivotal in each pathway to evaluate and explore novel therapeutic strategies.

Conclusion Relying on the molecular genetics, a huge change could be created in the treatment process of genetic diseases, particularly cancers associated with the Central nervous system creation. However, many questions have remained in this context and need more contemplate and research.

Keyword Glioblastoma, Treatment, Molecular Genetics

Diagnosis Breast Cancer with LVQ Neural Network on Breast Cancer Data Base

Nasim solmaz sohrabi
alireza atashi

Background One of the problems is not solving fundamental in the successful treatment of cancer, early diagnosis and early is the lack of a suitable method. Breast cancer is a common disease among women diagnosed at an early stage could have the effect of significantly reducing the rate of death in women. Hence the use of data mining models can lead to increased diagnostic accuracy of early diagnosis of cancer is thus.

Methods This study is fundamental analysis. The database used in this study. WDBC was used in UCI database, the database includes information record 699 FNA specimens with 9 feature. Which is 35% owned and 65% owned malignant breast cancer patients, breast cancer is benign. Based on the features included in this data set, LVQ neural network diagnostic model were created. Models created with cross-validation method were evaluated in the software Mat lab 2013a. And the 10 model, a model that had the highest efficiency was selected as the final model.

Results The results showed that the highest performance index model based on the standard harvest was sensitive index 97.5%, Specific index 98.6%, accuracy 98.8% and AUC index 0.98.8

Conclusion The results of this study showed that using an artificial intelligence algorithm and its application in modeling can be very sensitive to the method of medical screening, breast cancer diagnosed. In fact, using these methods to help doctors design new systems that facilitate the diagnostic processes and treatment.

Key words breast cancer, neural network LVQ

Effect of Bacterial lipopolysaccharide on Toll-like receptor -4 signaling in mouse cancer cell lines

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Back ground The stimulation of Toll-like receptor 4 (TLR4) by lipopolysaccharide (LPS) induces the release of critical proinflammatory cytokines that may promote cancer Progression. Here, we have analyzed the effect of Toll-like receptor 4 (TLR4) agonist lipopolysaccharides (LPS) on mouse melanoma (B16F10) and breast cancer (4T1) cell viablity and their TLR4 signaling.

Method To evaluate the effect of LPS on the cell viability, the cells were treated with LPS (0, 1.25, 2.5, 5, 7.5,10 µg/ml) for 4, 16, 24,48h and MTT assay was done .The expression of TLR4, myeloid differentiation primary-response gene 88 (MyD88) and nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB) mRNA was detected by quantitative real time-polymerase chain reaction method semi quantitatively.

Results Results showed that only LPS at 5 µg/ml concentration increased significantly B16F10 cell viability at 16 and 24 hour after stimulation. LPS had no significant effect on 4T1 cell proliferation in any times and doses. By qRT-PCR analysis, specific stimulation of TLR4 (5 µg/ml LPS) on B16F10 and 4T1 cells showed significant mRNA expression of the TLR4 , adaptor protein MyD88, as well as downstream signal transduction factors NF-KB.

Discussion This study shows B16F10 and 4T1 cell represent a good model system for studying the mechanisms of LPS and TLR4 signaling in melanoma and breast cancer progression.

Keywords Cancer, LPS, Mouse, TLR4 signaling

Nodularity on clinical breast examination as a predictor of mammographic density: Can it change screening guidelines?

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Background Breast density is routinely reported on mammograms but little data exist about breast density or nodularity on clinical examination. If breast nodularity on clinical examination could predict mammographic density, it could be used to select the appropriate screening tool for each individual woman.

Objectives The aim of this study was to evaluate whether breast nodularity on examination is related to mammographic breast density.

Methods Clinical breast examination and mammography was done for women referred for mammography. Breast nodularity and mammographic density was assessed and the relationship between mammographic breast density and breast nodularity was evaluated. Also the relation between mammographic breast density and age, menopausal status and number of parities was assessed.

Results Three-hundred-and-twenty women with a mean age of 46.01 were included. The kappa measure of agreement between nodularity on clinical examination and breast density on mammography was 0.275 (p-value of < 0.001). This relation was only seen in the subgroup of premenopausal women and those aged 40-49 years. In postmenopausal women and those 50 years or older no relationship was seen. Mammographic density related inversely with age, postmenopausal status and number of parities.

Conclusion Severe nodularity on clinical examination is related to high density mammography in younger premenopausal women so that complementary imaging would be prudent in this subgroup. A more efficient screening program for breast cancer should be developed in the future based on these individual differences.

Keywords Mammography, Density, Clinical Breast Examination, Nodularity, Screening

Growth inhibition and induction of apoptosis in K562 chronic myeloid leukemia cells by Streptomyces clavuligerus ethyl acetate soluble metabolites

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Background recently, several compounds have been isolated from Streptomyces ssp that induced growth inhibition and induction of apoptosis in different lines of cancer cells. In this study, we reported Streptomyces clavuligerus ethyle acetate soluble metabolites with anti cancer activity against K562 chronic myeloid leukemia (CML).

Methods the K562 cells were cultured in 96-well plates and treated with different concentration (20-150 µg/mL) of ethyl acetate soluble metabolites. Growth inhibition and viability determined by MTT test. Apoptosis was also detected by fluorescent microscopy and DNA fragmentation assay.

Results ethyl acetate soluble metabolites inhibited growth and viability of the cells in dose and time dependent manner. After exposure for 72 hours, the IC50 value were calculated 65 µg/mL. The results of fluorescent microscopy, DNA fragmentation assay revealed that ethyl acetate soluble metabolites induced apoptosis.

Conclusion According to the anti cancer effect of ethyl acetate soluble metabolites Streptomyces clavuligerus in in K562 chronic myeloid leukemia cells, these metabolites can be proposed as effective agents for more investigation in leukemia treatment.

Key words Apoptosis, Streptomyces clavuligerus, Chronic myeloid leukemia, K562 cell.

Effect of oral silymarin administration on prevention of radiotherapy induced mucositis: A randomized, double-blinded, placebo-controlled clinical trial

Sepideh Elyasi- Sare Hosseini- Mohammad Reza Niazi Moghadam- Seyed Amir Aledavood- Gholamreza Karimi

Objectives Mucositis is a frequent severe complication of radiation therapy in patient with head and neck cancer. Silymarin is a polyphenolic flavonoid extracted from the milk thistle exhibits strong antioxidant and anti-inflammatory activities. In this study, we evaluate silymarin efficacy in prevention of radiotherapy induced mucositis in patients with head and neck cancer, as the first human study.

Methods During this pilot, randomized, double-blinded, placebo-controlled clinical trial, the effect of oral silymarin 420mg daily in three divided doses starting at the first day of radiotherapy for six weeks, on oral mucositis occurrence was assessed. Twenty-seven patients, that fulfilled the inclusion criteria assigned to the silymarin or placebo group. World health organization (WHO) and national cancer institute-common terminology criteria (NCI-CTC) oral mucositis grading scale scores were recorded at baseline and weekly during these 6weeks.

Results The median WHO and NCI-CTC scores were significantly lower in silymarin group at the end of the first to sixth week ($P<0.05$). The scores increased significantly in both placebo and silymarin groups during radiotherapy but there was a delay for mucositis development and progression in silymarin group.

Conclusion Prophylactic administration of conventional form of silymarin tablets could significantly reduce the severity of radiotherapy induced mucositis and delay its occurrence in patients with head and neck cancer.

Key words Silymarin- Mucositis- Head and neck cancer- Radiotherapy- Silybum marinum

Frequency of axillary lymph node involvement in female breast cancer in Babol Shahid Beheshti Hospital and Tonekabon Shahid Rajaei Hospital and Ramsar Imam Sajjad Hospital at 2012 to 2014

Dr maryam zakeri , Dr shahrbano keyhaniyan, nafiseh kochaki, Dr majid poya, Dr mohamad mansor saravi, shadi saravi, ali saravi

Background The breast cancer is the most prevalence cancer among the women and the most important element of death due to cancer in women around the world. The breast cancer has been dedicated seventeen percentages of total women's cancers and also is in the first rate. This study has been implemented in order to survey frequency of axillary lymph node involvement in female patients with breast cancer.
Methods The method of study is descriptive. The samples of study are of 168 female patients defected to breast cancer in hospitals, Shahid Beheshti of Babol and Shahid Rajaei of Tonekabon and Imam Sajjad of Ramsar from 1391 until the end of 1393. Criteria for admission have included the female patients infected to breast cancer and the exclusion criteria are not to report the LN in pathology sheet (NX), and uncomplicated documents of patients. The information were registered and collected as a checklist and statistically analyzed through SPSS 21 software.
Results Axillary lymph node involvement was seen 117 cases (70.1%) among our patients. The patients' mean age was 49.64 ± 11.62 in year (22-81). The most prevalence age group was 40-49 (39.2%) that had the most lymph node involvement in all patients (24.0%) in this group. The average size of tumor was 3.39 cm, so most patients(98 cases, 58.7%) had a tumor size 2-5 cm (T2) but the most involvement has been related to T3 (>5cm) with 23 patients (100.0%). The most common tumor type and grade was invasive ductal carcinoma with156 patients (93.4%) and grade 2 with 87 patients (52.1%). Most lymph node involvement than total individuals infected to LN+ was been 111 patients (94.9%) in invasive ductal carcinoma and 85.1% in patients with degree 3 had the most lymph node involvement. The vessels invasion was 37 cases (22.2%) of 48 patients with vessels involvement had axillary lymph node involvement. Most tumors have plus receiver of estrogen and progesterone (97 cease, 63.8%).
Conclusion There is a statistically significant relation between axillary lymph node involvement and tumor, size, grade, estrogen/progesterone receptor status, and type while there isn't any significant relation between axillary lymph node involvement age and ER PR status.

Key words Breast cancer, Axillary lymph node involvement.

The role of Religious Orientation with Death Anxiety in quality of life of cancer patients

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IntroductionCancer is one of the most common diseases in the world that the number of cancer patients is increasing.Be aware of a cancer diagnosis can be physically and psychologically very stressful for patients and their families.so that Several studies have shown that there is a close relationship between cancer and psychological states.Quality of life in cancer patients is not only determined by disease and its treatment But also related to other medical conditions and social and demographic characteristics.Concepts such as physical health, psychological state of the individual beliefs(religious orientation)and social relations between individuals and the environment affect quality of life. So diagnosis and identify factors that may affect the quality of life of cancer patients,in terms of mental health patients is important. Among the factors and components effective on quality of life and mental health in this group of patients are the anxiety of death and the religious orientation of this people.So that the religious orientation as a way of reducing anxiety and fear of death is discussed and shown that negative attitudes to religion increases the anxiety of death.as a result in recent years the religion as one of the most important variables affecting the behavior and mental state of the attention of many behavioral sciences specialists such psychologists.

Conclusion So by Considering the spread of cancer and the importance of psychological factors in the quality of life of these patients,this study examines the role of religious orientation with anxiety of death in quality of life of cancer patients.

Keywords cancer, quality of life, Death Anxiety, Religious Orientation

Prevalence of death anxiety in women with breast cancer in Kermanshah, 2015

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Introduction Breast cancer is the most common women's cancer a chronic condition with psychological complications such as anxiety death. The aim of this study was to evaluate the incidence of death anxiety in women with breast cancer in 2015 in one of the public hospitals of Kermanshah.

Method This is a descriptive study and we use a two part questionnaire that included demographic characteristics in first part and the second part was Templer Death Anxiety questionnaire contains 15 questions Yes and No. 48 female patients with breast cancer in one of the public hospitals in Kermanshah were selected randomly and data were analyzed using SPSS version 22.

Results The age range of patients was between 29 to 67 years that 93.4% of the patients were married. 79.2% of patients had high death anxiety that the highest and lowest scores for death anxiety was 15 and 2 and the average scores of the patients was 9.04 with standard deviation of 3.71. Middle-aged people also had the highest death anxiety and as well as patients with poor education and weak economic situation also had higher death anxiety.

Conclusion The results show that there is high Score of death anxiety in studied population which may be due to lack of adequate training to deal with death and death anxiety awareness in patients with cancer in the department of oncology and radiotherapy. According to the results, it is suggested, while more attention to mental health in the same population to improve the quality of mental health of these patients and more broader studies done in this issue.

Keywords death anxiety, Breast cancer, Kermanshah

Changes the molecular mechanism of Bax protein in Mcf-7 breast cancer cells treated with nicotine

Naghmeh aali, Shahram hadaddi, gholamreza motalleb

Cancer is one of the non-communicable chronic diseases that threaten the health of families and the physical and mental, social and economic situation affects the individual. During the past 50 years the incidence of breast cancer is significantly increased in the United States, so that almost every 8 women will be diagnosed with one. Reduction of apoptosis proteins including Bax in many cancers such as breast cancer has been observed. One of the factors that increase cancer in women is the use of cigarettes. Nicotine in cigarettes is an effective material that bind to nicotine receptor in cells and affect apoptosis pathway is impaired. The aim of this study was to evaluate apoptotic protein Bax in Mcf-7 cells treated with nicotine in breast cancer.

Main methods To investigate drug resistance, MCF-7 cells were treated with nicotine dissolved in PBS.Then varying doses of doxorubicin was used. Cell viability was determined by MTT assay. Apoptotic Bax biochemical parameters were assessed by Western blot.

Key findings The results showed that the treated cells with nicotine compared to control cells, reduction of protein Bax and decreased cell death in cells treated with nicotine compared to non-treated with nicotine occurred.

Conclusion The results suggest that the nicotine in breast cancer MCF-7 cells leads to drug resistance and reduces apoptosis factors which cause the cancer cells to resist treatment.

Keys word breast cancer, Bax protein, Drug resistance, Doxorubicin

Docetaxel differentially alters the expression level of mir-21 and Let-7a in gastric cancer cell lines.

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Introduction MicroRNAs are noncoding RNAs which play critical roles in carcinogenesis. Mir-21 and Let-7a are oncomir and tumor suppressor miRNAs respectively which involve in tumorigenesis of gastric cancer. Here we aimed to study alterations in expression of these miRNA in GC cell lines after treatment with Docetaxel.

Materials and Methods GC cell lines (AGS, MKN45, and KATO-III) were cultured and MTT assay was conducted to determine IC50 of Docetaxel. After RNA extraction and cDNA synthesis, the expression level of mir-21 and let-7a was determined using quantitative Real-time PCR for both treated and untreated cell lines.

Results Statistical analysis showed that after treatment, the expression level of mir-21 was increased in AGS (2.5 fold, $p < 0.0001$), MKN45 (1.5 fold, $p = 0.0006$) and KATO III (1.3 fold, $p = 0.01$). On the other hand expression of let-7a in AGS (2.39 fold, $p = 0.004$) and MKN45 (1.77 fold, $p = 0.001$) were increased while decreased in KATO III (0.7 fold, $p = 0.01$).

Conclusion Unexpected increased expression level of mir-21 could be a mechanism to resist against therapy with docetaxel. On the other hand increased expression level of let-7a was expected and could be the result of therapy. One exception was KATO III that showed decreased level of let-7a. This finding could be attributed to higher IC50 of this cell line, i.e. more resistance against docetaxel, (130μM in comparison with 22 μM and 18.5 μM for AGS and MKN45, respectively). In conclusion, altered expression of let-7a could be a useful marker for response to therapy.

Key words Gastric Cancer, mir-21, Let-7a, Docetaxel.

In silico designing breast cancer peptide vaccine for binding to MHC class I and II a molecular docking study

Manijeh, Mahdavi, Violaine, Moreau

Antigenic peptides or cancer peptide vaccines can be directly delivered to cancer patients to produce immunologic responses against cancer cells. Specifically, designed peptides can associate with Major Histocompatibility Complex (MHC) class I or II molecules on the cell surface of antigen presenting cells activating anti-tumor effector mechanisms by triggering helper T cell (Th) or cytotoxic T cells (CTL). In general, high binding to MHCs approximately correlates with in vivo immunogenicity.

Consequently, a molecular docking technique was run on a library of novel discontinuous peptides predicted by PEPOP from Human epidermal growth factor receptor 2 (HER2 ECD) subdomain III. This technique is expected to improve the prediction accuracy in order to identify the best MHC class I and II binder peptides. Molecular docking analysis through GOLD identified the peptide 1412 as the best MHC binder peptide to both MHC class I and II molecules used in the study. The GOLD results predicted HLA-DR4, HLA-DP2 and TCR as the most often targeted receptors by the peptide 1412.

These findings, based on bioinformatics analyses, can be exploited in further experimental analyses in vaccine design and cancer therapy to find possible proper approaches providing beneficial effects.

Key words HER2 receptor, Docking, MHC, Bioinformatics, Peptide vaccine

Production and characterization of monoclonal antibodies against hHER2 and evaluation of its effects on breast cancer cell line SK-BR-3

Manijeh Mahdavi, Mehrnaz Keyhanfar.

Introduction Worldwide, breast cancer is a major public health problem. Although, in Iran cancer is the third cause of death after coronary heart disease and accidents, it`s mortality is on the rise during recent decades. About 15% to 20% of patients with invasive breast cancer have abnormally high levels of the HER2 protein. HER2 is a specialized protein found on breast cancer cells that controls cancer growth and spread.

Methods This study describes generation and characterization of new anti-HER2 mAbs towards HER2 protein using a chimeric peptide immunogen containing discontinuous B-cell epitope peptide (peptide 626) and promiscuous T-helper epitope (MVF). The chimeric peptide was designed by bioinformatics analysis. MAbs were isotyped using isotyping kit. They characterized by SDS-PAGE, Western blotting, and immunofluorescence. The effects of purified mAbs on breast cancer (SK-BR-3) cell proliferation were evaluated by MTT assay.

Results We generated three IgG isotype monoclonal antibodies (1A11, 5H5 and 5H11) and seven IgM isotype mAb using a standard hybridoma technology. The specificity of these mAbs was confirmed in various immunoassays, including ELISA, Western blotting, and immunofluorescence. In addition, the MTT assay results indicated that 5H5 and 5H11 mAbs could reduce growth of SKBR3 cells by approximately 50% ($P < 0.05$).

Discussion These mAbs that can reduce cancer cells proliferation would be useful for cancer therapy. Furthermore, the synthetic peptide used in the current work, was able to induce immune system to generate antibodies especially IgG isotype. Therefore, it could be further used as cancer peptide vaccine that target different epitope or structural domain of HER2 ECD.

Key words HER2 receptor, Monoclonal antibody, Antigen design, Breast cancer

QSAR Study OfAntiproliferative Drug Against A549 By GA-MLR and SW-MLR Methods

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ABSTRACT Quantitative structure-activity relationship (QSAR) is the most extensively used computational methodology for analogue-based design. In this research, QSAR model was used to predict antiproliferative properties of 4-(2-fluorophenoxy) quinoline derivatives against A549(human lung adenocarcinoma). For this purpose we used the multiple linear regressions (MLR) for the construction of a model to predict drug activity and Stepwise (SW)and genetic algorithm (GA) methods used to build the model.

The data were selected from 31 molecules with specific pharmacological activity. They were divided into two sets Train and Test data using hierarchical clustering techniques. The resulting model was tested using statistical methods such as external test set and cross-validation to ensure its authenticity. The results showed that GA-MLR approach had good predictive power and higher data rates compared with SW-MLR (Q2LOO = 0.877, R2Train =0.933). The results obtained in this study can be used to design drugs with higher performance and pharmacological activity to treat lung cancer.

Key wordslung Cancer, Quinoline derivative,Multiple linear regressions, Genetic algorithm

Clinical and pathological features of pancreas neuroendocrine neoplasms

Author and Presenter author Neda Nozari

Background Pancreatic neuroendocrine neoplasms (PNETs) are rare neoplasms with variable malignant potential, prognosis, and survival. The aim of this study was to assay the character¬istics of patients with PNETs from one referral center.

Methods During three years, all patients who came to the Endosonography unit of Shariati hospital- Tehran and had pancreatic lesions were as¬sessed. Neoplasm samples were obtained through several fine needle aspirations. Various characteristics of the PNETs were recorded and patients were followed up. All statistical analyses were performed by SPSS software.

Results Twenty eight nonfunctional cases (aged 37-72 years) were identified among 70 patients with PNETs.15 (53.6%) of them were men. Most of neoplasms (53.6%) were located in the pancreatic head .The mean tumor size was 3.9 cm and 10.7% , 28.6%, 32.1%, and 28.6% of the patients were at stages I, II, III and IV, respectively.12 (43%) of the patients underwent surgery, 3 (10.7%) received chemotherapy, and 13 (46.4%) received no treatment. Dur¬ing the mean follow-up of 16 months, the disease progressed in 3 (10.7%) patients and 10 (35.7%) patients died. In univariate analysis, tumor size>3cm and Ki-67>20% were correlated with survival rate but not in multivariate analysis. A total of 42 patients (62% women; mean of age 40 years) with functional-PNETs were identified. The mean tumor size was 2.7cm. 33.4% (n=14) of patients had a solid tumor in the head of pancreas. 85% (n=36) of patients were treated surgically. Neoplasm recurrence didn't report during the mean follow-up of 18 months after tumor resection.

Conclusions Patients with functional neoplasms had better outcomes than patients with nonfunctional neoplasms. These results were the same as reports from other countries.

Keywords Neoplasm, Pancreas, Neuroendocrine, Iran, Survival

The study of KRAS codon 12 and 13 mutations in patients with colorectal cancer in Esfahan

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Background The KRAS proto-oncogene encodes a 21-kDa RAS protein, a member of a highly conserved family of GTPases involved in signal transduction processes. Mutations in the KRAS gene render the protein constitutively active in signaling by eliminating the GTPase activity. In human Colorectal cancer (CRC), mutations in the KRAS gene are very frequent (20%-50%), approximately 90% of these mutations have been recorded at codon 12 (wild-type GGT) and codon 13 (wild-type GGC) of exon 2.

Materials and Methods This study was performed on 52 patients with colorectal cancer who referred to the AL-Zahra hospital in Esfahan. The total DNA was extracted from Fresh tumor and normal tissues, the exon 2 of KRAS gene was amplified and sequenced for detection the mutation points. After mutation analysis, all the mutation types and amino acid change at the codon 12 and 13 were detected.

Results In this study the prevalence of KRAS gene mutation was 15/4 %. The mutated GAT of codon 12 leading to an amino acid change as glycine (Gly) to aspartic acid (Asp) (4/8, 50%) and it was the most frequently observed mutation. two patients were found to harbor a GCT mutation which was lead to an amino acid change as Gly to alanin (Ala) (2/8, 25%). The G-A transition was the only mutational type found at codon 13(2/8, 25%), resulting in an amino acid change as Gly to Asp.

Conclusions This paper presents new results on the frequency of KRAS mutations in colorectal carcinomas of Esfahan patients. Our data emphasizes the importance of prospective evaluation of molecular tests in CRC patients.

Key words colorectal cancer, KRAS, mutation, codon 12 and 13

Investigation of the association of HOTAIR single nucleotide polymorphisms and risk of Breast cancer in an Iranian Population

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Background Long non coding RNAs (lncRNAs) are a group of functional non coding RNAs Which has been shown to be involved in several important pathways in cancer development And progression. Among them is Hox transcript antisense intergenic RNA (HOTAIR) whose overexpression has been detected in several cancer types. In addition, it's functional polymorphisms have been shown to be associated with breast cancer risk in certain Populations.

Objectives The aim of the present study was to investigate the effect of three HOTAIRpolymorphisms (rs12826786, rs1899663 and rs4759314) and their haplotypes on breast Cancer risk in a sample of Iranian population.

Material and methods This study is a case-control study which consisted of 122 unrelated breast cancer patients from Hamadan University Hospital and 200 normal females who were referred to a routine health survey during 2015. Genomic DNA was extracted from blood Samples of all participants using the standard salting out method. Tetra-primer ARMS-PCR Method was used for analyses of rs12826786, rs1899663 and rs4759314 genotypes.Comparison of genotype and allele frequency between the breast cancer patients and the Control group was performed using Pearson chi-square test considering odds ratio (OR) and95% confidence intervals (CI) for calculation of the relative risk. haplotype frequencies forHOTAIR were calculated using SNPStats online program.

Results No significant difference has been found in allele and genotype frequencies ofpolymorphisms between case and control groups. Furthermore, no specific HOTAIR haplotype was shown to be associated with breast cancer risk in the analyzed population.

Conclusion These polymorphisms do not seem to be associated with breast cancer risk in this population. However, further researches are needed to evaluate the result of the presentstudy in larger patient samples.

Key words HOTAIR, long non coding RNA, breast cancer, Iran

Study on anti-cancer activity of a new compound of Spiro – chromene family on NB4 Acute promyelocytic Leukemia

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Background: Recently, several drug have been proposed for the treatment of acute promyelocytic leukemia (APL). However , none of them has resulted in complete remission.

Previous studies suggested that the chromenes family are potent apoptosis – inducing agents in various cancer cell lines. In this study, anti-cancer effects of the indicated spiro- chromene derivative (PESC) were investigated against NB4, Acute Promyelocytic Leukemia (APL).

Methods: The NB4 cells were seeded in 96 well cell culture plates for 24, 48 and 72 h.Then, the cells were treated with different concentration (25-200 µM) of the PESC and cell viability was assessed using the MTT assay. Induction of apoptosis was analyzed by fluorescent microscopy (AO/EtBr staining), agarose gel electrophoresis (DNA fragmentation assay) and cell cycle analysis.

Results: The PESC inhibited the cell viability, in a dose – and time dependent manner. After exposure for 72 hours, the IC50 value for NB4 cells were calculated 50 µM. The results of fluorescent microscopy, DNA fragmentation assay and sub-G1 cell cycle analysis revealed that the PESC induced apoptosis at respective IC50 value after treatment.

Conclusion: Based on the effect of growth inhibition and induction of apoptosis in NB4 cells were observed, this compound can be proposed as good candidate for further studies in leukemia treatment.

Keywords: Apoptosis, Acute Promyelocytic Leukemia, Spyro-chromene, NB4 cell

Cytotoxic effect of Arctium species extracts on human hepatocellular carcinoma cell line

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introduction Plants have long been used among the native population of Iran as remedies against different diseases. Nowadays, they are still utilized by the rural population.

method In this study, we have study five methanolic extracts from Arctium species A. lappa , A. minus, A. minus nemorosum, A. pubens, A. tomentosum for their cytotoxic activity on the human hepatocellular carcinoma cell line Hep G2.

result To investigate the effect of cytotoxic activity of the methanolic extracts of the plant selected on cell viability, Hep G2 cells were incubated with different plant extract concentrations. After 48 h, cell viability was determined with MTS. The IC50 was determined for all the plant extracts showing cytotoxic activity.
A. minus, A. minus nemorosumand A. lappa methanolic extracts inhibited growth of Hep G2 cell line in a concentration-dependent manner. The four methanolic extracts may have some kind of antitumoral activity.

Key word Cytotoxic, hepatocellular

TNF-α exerts cytotoxic effects on multidrug resistant breast cancer MCF-7/MX cells via a non-apoptotic death pathway

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Objectives.TNF-α is a pleiotropic cytokine activating different downstream signaling pathways leading cells to death or survival. In some in vitro examinations, including our previous study on MCF-7 breast cancer cells and their multidrug resistant (MDR) derivatives, MCF-7/MX cells, TNF-α treatment caused higher cytotoxic effects on MDR cancer cell lines compared to their parental counterparts. In this study we investigated possible signaling mediators involved in this phenomenonin order to clarifying pleiotropic nature ofTNF-α and also finding the potential Achilles' heel of MDR.

Materials and methods.AnexinV/PI flow cytometric analysis was used to determine the mechanism of cell death.Various TNF-α signaling mediatorswere analyzed before and after TNF-α exposure in MCF-7 and MCF-7/MX cells; ROS production andNF-κBandcaspases activities were measured and JNK phosphorylation and RIP1 phosphorylation and ubiquitination were evaluated by western blot.

Results.TNF-α treatment led to NF-kB activation and RIP1 ubiquitination in MCF-7 cells,whilein MCF-7/MX cells JNK and RIP1 phosphorylation increased. The activity of investigated caspases did notchange in both cell lines following TNF-α treatment. AnexinV/PI analysis also showed that TNF-α exerted its cytotoxic effects on MCF-7/MX via apoptosis independent mechanisms. TNF-α treatment increased ROS production in MCF-7/MX cells but no change in ROS level occurred in MCF-7 cells.In MCF-7/MX cells inhibition of RIP1 kinase activity using necrostatin-1revealed that kinase activity of RIP1 is involved in the ROS production, JNK activation and cellular death induced by TNF-α.

Discussion and conclusion.It seems that following TNF-α treatment RIP1 ubiquitination and NF-kB activation are involved in MCF-7 cells resistance against TNF-α cytotoxic effects while TNF-α drives MCF-7/MX cells to non-apoptotic cellular death via kinase activity of RIP1, ROS production and JNK activation.

Keywords:TNF-α, breast cancer, multidrug resistance, RIP1.

Psychological Aspects of Cancer Screening

Authers: Naghmeh Saba, Farid Ataei

Introduction: Although recent screening programs has increased the detection of cancer in community it seems that these programs have dual effect and are accompanied with increasing psychosocial problems in screened individuals. Despite the importance of this issue it seems still there is lack of information and education programs for health care providers who are engaged in cancer screening about psychological aspects of cancer screening.
The purpose of this article is to review the published literature about psychological aspects in cancer screening.
Methods: Extensive Medline search was carried out covering the period of last 10 years from 2006 to 2016. Cancer, Neoplasm, Screening, Detection of cancer and detection of neoplasm were selected as main keywords. All published articles in any language with English abstract were included. Any other available reference psychological books published up to 2016 that including the chapters discussed the psychological aspects of cancer screening were also reviewed. Totally about 213 article and book chapters were reviewed. Those articles and book chapters that focused on psychological aspects of cancer screening were included. The results of review were summarized.
Results: The results of review were summarized and categorized in different subjects. The main subjects were screening categories, psychological responses of individuals to the results of the screening, Underlying and co morbidity psychological problems in individuals who undergo cancer screening, coping with detected cancer in screening, Psychopharmacology and other psychiatric trapeutic modalities in these individuals. Psycho legal aspects of cancer screening, epidemiology of psychological problems in individuals who undergo cancer screening, Information that health care provider should know about how to breaking bad news to patients and how to manage psychological problems in these individuals.
All of the above will be discussed in details by the author.
Conclusion: The results of this review reveal that psychological problems are common in individuals who undergo cancer screening. According to the results of the study authors strongly recommend that health care provider who are engaged in cancer screening should be informed and educated about psychological aspects of cancer screening.
Keywords: Cancer, Neoplasm, Screening, Detection of cancer and detection of neoplasm

The combinational effect of crocin and cisplatin on cell cycle progression of human cervical cancer cells

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Introduction and aim of the study: Cervical cancer is one of the major female cancers in developing countries such as Iran. Although usefulness of current therapeutic methods, such as chemotherapy and radiotherapy their unwanted side effects on normal cells and drug resistance of tumor cells remain as an obstacle for oncologists. Recently, scientists shed light on combinational therapy to increase the efficiency of treatment. To this end medicinal plants such as saffron (Crocus Sativus L.) have been attracting scientist's attention. Crocin is one of the main carotenoid of saffron that its antitumor properties have been studied in several cancers but the molecular mechanism of its action not fully understood. In the present study, we aimed to investigate the combinational effect of crocin and cisplatin on human cervical cancer cells (OV2008) and explore the molecular mechanism of their action through affecting the cell cycle progression.
Methods: Human cervical cancer cells (OV2008) were cultured in RPMI medium. We used crocin and cisplatin individually or jointly on cells and cell viability were assessed by 3-(4,5- dimetylthiazol-2-Yl)-2,5–diphenyltetrazolium bromide (MTT) test. Also the mRNA levels of Cyclin D1and P21 were measured by Real-time PCR.
Results: Our results showed that Crocin in combination with Cisplatin significantly inhibited cell viability. Real-time PCR data proved that treatment of cells with crocin and cisplatin individually and jointly increased P21 and decreased Cyclin D1 expression level in a dose- and time- dependent manner. Also, these alternations were more significant in combinational treatment crocin only.
Discussion and Conclusion: This combinational therapy could lead to decreasing the effective dose of cisplatin and as a result unwanted side effects of it. Hence it is suggested that Crocin combined with Cisplatin could potentially use as a chemotherapeutic agent.

Key Words: Cervical cancer, Crocin, Cisplatin, Combination therapy, Cell cycle

Comparison Study between Chemical and Herbal Compound In Tumorigenesis during Apoptosis

Sepideh Jafari, Fatemeh Rabbani, Mohammad Reza Ganjalikhany

Cancer is the most important cause of death in the world and the rising number of cases, has led efforts to curb it. The human body is constantly growing, reproduction and restoration. Disruption of the body's natural process, leading to the uncontrolled growth of cancer cells. Apoptosis or programmed cell death is used to remove unnecessary cells in living organism. This process is important in the regulation of homeostasis, and disruption of correct function of it is cause of many diseases, including cancer. Activation and inhibition of apoptosis is done by various factors. One of these factors is the BCL-2 protein. ERK is a component of mitogen-activated protein kinase (MAPK) pathway that regulate cell functions including proliferation, gene expression, differentiation, mitosis, cell survival, and apoptosis. By considering type of cell and stimulus, ERK induces anti-proliferative pathway like apoptosis in aberrant activation of it. In this study, we evaluate and compare binding energy of different inhibitors of BCL-2 and determine the most potent compound for binding to it by bioinformatics tools.

Meted: The study of Molecular docking of BCL-2, anti-apoptosis protein (PDB ID: 4XLD) has been done with chemical (ABT-199، ABT-737), herbal (Quercetin, Gossypol) that are used as cancer drug and herbal-like compounds (from ZINK server) by Autodock 4.2.6 software which calculates Binding Energy and ligand efficacy of these inhibitors.

Results and conclusion: with comparison the results of Molecular Docking, we found that herbal and herbal-like compounds with smiles txt "[NH3+]CCCCCCN[S](=O)(=O)C1=C2C=CC=C(Cl)C2=CC=C1" have rather good potential effect for banding to BCL-2 (-3.64 Kcal/mol ,-4.3 Kcal/mol) and inhibiting it, eventually leading to apoptosis process. So herbal inhibitor can induce apoptosis and treatment of the cancer with low side effect of chemical inhibitors. Herbal-like compound can also be a new inhibitor of BCL-2 that should be tested.

Key words: Molecular docking, Cancer, Apoptosis, BCL-2, ERK

Epi-miRNAs: an emerging science in the Interactions of microRNA and Epigenetic Modifications in Cancer

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Background: Cancer initiation and progression is controlled by both genetic and epigenetic events. The complexity of carcinogenesis cannot be accounted for genetic alterations alone. So, epigenetic changes have been introduced. Epigenetic mechanisms are heritable and reversible, and include changes in DNA methylation, histone modifications and small noncoding microRNAs (miRNA). Disruption of epigenetic processes can lead to altered gene function and malignant cellular transformation.

Clearly, miRNA genes can be epigenetically regulated by DNA methylation and/or histone modifications. In turn, a subgroup of miRNAs, named epi-miRNAs, was recognized to directly target enzymatic effectors involved in epigenetic modulation. These observations suggest the existence of a regulatory circuit between epigenetic modulation and miRNAs, which could have a significant effect on transcription. Because miRNAs have a large impact on carcinogenesis through the regulation of diverse target genes, understanding the regulatory mechanisms of miRNA expression is important in treatment and prevention of human cancers.

Similar to protein-coding genes, miRNAs are also susceptible to epigenetic modulation. Although numerous miRNAs have been shown to be affected by DNA methylation, the regulatory mechanism of histone modification on miRNA is not adequately understood. EZH2 and HDACs were recently identified as critical histone modifiers of deregulated miRNAs in cancer and can be recruited to a miRNA promoter by transcription factors such as MYC. Because miRNAs can modulate epigenetic architecture and can be regulated by epigenetic alteration, they could reasonably play an important role in mediating the crosstalk between epigenetic regulators. The complicated network between miRNAs and epigenetic machineries

underlies the epigenetic–miRNA regulatory pathway, which is important in monitoring gene expression profiles. This review emphases on how epigenetics changes affects the microRNAs and how the recently identified epi-miRNAs regulate the epigenome in human cancers, eventually how they contribute to cancer progress.

Conclusion: The unbalanced expression of oncogenes (OGs) and tumor suppressor genes (TSGs) is the common pathogenetic mechanism of human cancer. Therefore, elucidation of which processes regulate gene expression and ultimately lead to this unbalance has the potential to reveal how this aberration occurs and how it is involved in human carcinogenesis. MiRNAs are frequently deregulated in human tumors compared with the normal tissue counterpart. The discovery that miRNAs undergo epigenetic regulation, similar to any other PCG, and that epi-miRNAs can regulate effectors of the epigenetic machinery introduces new layers of complexity in gene regulation. A better understanding of these mechanisms and of the intertwined relationship between miRNAs and epigenetics is necessary to understand how the human genome is regulated and how gene expression aberrations that contribute to human carcinogenesis can be therapeutically corrected.

Keywords: microRNA, epi-miRNA, epigenetic changes, DNA methylation, histone modification

Effect of therapeutic touch on parameters of activity in patients with cancer: a randomized clinical trial

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ABSTRACT : Introduction: In patients with cancer, pain may influence their life style, and feeling of satisfaction and comfort, leading to fatigue, and cause impairment of their quality of life, personal relationships, and daily activities. The aim of this study was to evaluate the effect of therapeutic touch (TT) on activity in patients with cancer.

Methods: In a random¬ized clinical trial a total of 90 male patients referring to Specialized Oncology Hospital in Mashhad, were conveniently selected and randomly divided into three intervention, placebo, and control groups. The intervention consisted of TT in 7 sessions for a 4-week period. The data were collected using a demographic questionnaire along with the Brief Pain Inventory, which were then analyzed and compared using Kruskal-Wallis and Mann-Whitney tests.

Results: By comparing scores parameters of activity scales (general activity, walking ability, relations with other people) in the three groups, there was no signifi¬cant difference at the beginning of the first session. However, a significant difference was observed at the end of TT sessions between the three groups (p= 0.001). Furthermore, the groups were compared two-by-two by using Mann-Whitney test and Bonferroni correction, and the result indicated significant differences between the two intervention and placebo groups as well as between the two intervention and control groups.

Conclusion: The results of the study showed that TT had a positive impact on the positive management of activity parameters in cancer patients. Therefore, TT is suggested to be used by healthcare providers as a complementary method for managing activity and its parameters.

Key words: Activity related parameters, Therapeutic touch, Cancer, General activity

Induced pluripotent stem cells in cancer modeling

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Background: Induced pluripotent stem cells (iPSCs)are self-renewal cells derived from somatic cell reprogramming. iPSCs can differentiate into all cell types of three germ layers. Pluripotent stem cells which include embryonic stem cells (ESs) and iPSC with great applicable potential in regenerative medicine, disease modeling and drug screening. The applications of ES are limited due to the ethical concerns about the use of human embryos therefore, the researchers become more interested in iPSC technology. Cancer is a multifactorial group of diseases with high prevalence and mortality in the world. Because of the absence of appropriate models, Studies in the field of development and pathogenesis of cancer has been limited. iPSCtechnology is a powerful tool to investigate the stages of cancer diseases and to screen drugs. Cancer derived iPSCsrecapitulate molecular mechanism of cancer initiation and progression. Here, we reviewed current developments in generating iPSCs from the patient-derived cancer cells and we alsodiscussed some approach to improve the reprogramming process.Methods: The recently published original articles in the field of cancerous cells reprogramming were find via searching in pubmed, scopus, science direct and google scholar databases. Results and conclusion: Reprogramming cancer diseases into iPSCs has provided great model to study pathophysiological features of different stages of cancer and to screen related drugs. On the other hand iPSC technology can produced patient-derived models whichcompared to animal models show fundamental advantages such as specificity and reliable genetic backgrounds.

Keywords: induced pluripotent stem cells, cancer,Reprogramming, disease modeling

To Select the Appropriate Reference Gene for Normalizing the Quantitative Data to Assess MicroRNAs in Plasma Samples of Patients with Gastric Cancer

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Background: Circulating microRNAs are promising biomarkers in diagnosis and assessment of cancerous patients. Quantitative Real-time PCR assay is a sensitive test for evaluating the levels of miRNAs expression. Nevertheless, there is no concurrence on selecting appropriate reference genes for qPCR analysis of miRNAs in circulation. Therefore, the current study aimed to select a suitable reference gene for normalizing the RT-qPCR assay results in plasma samples of patients with gastric cancer.

Materials and Methods: Based on previously published studies, three molecules SNORD47, U6 RNA, and miR-103 were selected as the candidate reference genes. After RNA extraction from plasma samples of 40 patients with gastric cancer and 40 healthy individuals, expression levels of these molecules were evaluated using Real-time PCR method.

Results: The results showed that the developed assays are able to diagnose their specified targets by a suitable linear range. By comparing patients and control groups, although the expression levels of miR-103 molecule were not equal between the two groups (p= 0.017), SNORD47 and U6 RNAs had similar expression levels. However, the variations of SNORD47 expression were lower that U6 RNA.

Conclusion: Based on the results of the current study, the SNORD47 molecule has a stable expression levels in plasma samples of patients with gastric cancer and normal individuals and can be used as an appropriate reference gene for normalizing the quantitative data of qPCR assay.

Keywords: Gastric cancer, miRNAs, RT-qPCR, Reference gene

Mental role in promoting peace and improving the quality of life of cancer patients admitted to the oncology ward of a hospial doctor Ganjavian Dezfol

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3 Presenter

Introduction: Cancer is a major health problem worldwide that deal with the physical, psychological, social and spiritual crisis affecting the cause. This research has tried to address the problems of the patients.

Methods: This descriptive - correlational. In this study, the sample sizes of 114 patients (44% male and 56% female) were selected based on specific application form. The questionnaire Receptionist center; complete and psychology expert, examined the psychological counseling did.

Results: The results indicated that the criterion of quality of life and mental health and mental relaxation shows no significant dependence. The phases of the performance and quality of life factors showed a significant correlation is:
1 -Anxiety and stress in the life of the patient (anxiety problems and issues arising from past events as well as fear of the future)
2 - Emotional and mental problems (depression, fear (in women), anger, sadness, fear, lack of interest in usual activities).
3 - physical problems such as: (difficulty walking, swelling of the body, dizziness, memory and concentration problems, difficulty sleeping, burning and tingling hands and feet of women, men, nausea, feeling a failure, indigestion, pain, and fatigue in both sexes).
Statistics have shown that somatoform significant, the incidence is higher in women than men; and physical pain, occurs in men more than women; In terms of quality of life and physical function must be said that women at higher risk for loss of physical function and quality of life are inappropriate. Conclusion: Based on this research, the quality of life of cancer patients is associated with mental health and cancer has affected all aspects of life in patients.

Keywords: psychological comfort, quality of life, cancer

Investigation of human glioblastoma tumors' glucose metabolism using mouse models in vivo

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Objective: Although dysregulation in cell metabolism is considered as a hallmark for cancer cell lines, our knowledge about the exact metabolism of glucose and other nutrients in the tumors which are growing in their native microenvironment is limited. This study aimed to investigate the mitochondrial glucose oxidation in the glioblastoma tumors in a mice model.

Methods: An orthotopic mice model of primary human glioblastoma (GBM) was used to investigate tumor metabolism in vivo. 13C-labeled nutrients was infused into mice with three different GBM cell lines.

Results: All lines showed glycolysis in aggressive tumors with other complex metabolic pathways. These pathways included using glucose to provide anaplerosis and glucose oxidation via pyruvate dehydrogenase and citric acid cycle. Compared to normal brain surrounding the tumor, different metabolic differences such as accumulation of glutamine pool in the tumor was notable (p-value<0.05). In vitro study of cell tumors showed such metabolic activities conserved.

Conclusion: The studied pathways show that aggressive GBM tumor cells use mitochondrial glucose oxidation in vivo.

Keywords: Glioblastoma, Glucose metabolism, in vivo


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مراقبت‌های حمایتی و تسکینی

براساس تعریف سازمان بهداشت جهانی، مراقبت‌های تسکینی مجموعه‌ای از اقدامات هستند با هدف ارتقای کیفیت زندگی بیماران و خانواده‌های آنان، برای برطرف نمودن مشکلات و معضلات ناشی از بیماری‌های صعب العلاج و تهدید کننده زندگی، به واسطه پیشگیری یا برطرف نمودن دردهای آنان، با تشخیص زودهنگام، ارزیابی کامل و درمان درد و سایر مشکلات (روحی، روانی و فیزیولوژیک).

این مراقبت‌ها به ارائه خدمات چند رشته‌ای در مدیریت و کنترل عوارض جسمی بیماری از جمله درد، تهوع و استفراغ، مشکلات تنفسی، کاهش اشتها، مشکلات روده و مثانه، یبوست، زخم‌ها، مشکلات خواب، کاهش استرس و همچنین رفع مشکلات عاطفی، خانوادگی، فرهنگی، اجتماعی، شغلی و زندگی روزمره بیمار می‌پردازد. مراقبت‌های حمایتی و تسکینی در تلفیق کامل با روند درمان و از طریق هماهنگی بین درمانگر و تیم مراقبتی شامل متخصص داخلی، متخصص بیهوشی، جراح، روان‌پزشک، مشاور ژنتیک، روان‌شناس، مراقب معنوی، مددکار اجتماعی، پزشک عمومی، لنفوتراپیست، فیزیوتراپیست، پرستار و مشاور تغذیه صورت می‌گیرد. توجه هم زمان به آموزش، مشاوره، حمایت و مراقبت از خانواده بیمار، به منظور مدیریت بهینه فرآیند بیماری از ویژگی‌های بارز این خدمات بوده که مانع از ورود آسیب‌های جدی روحی، اجتماعی و اقتصادی به خانواده و بیمار می‌شود. خدمات مراقبتی در مکان‌هایی مثل بیمارستان، کلینیک، آسایشگاه و منازل بیماران قابل ارائه می‌باشند.

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