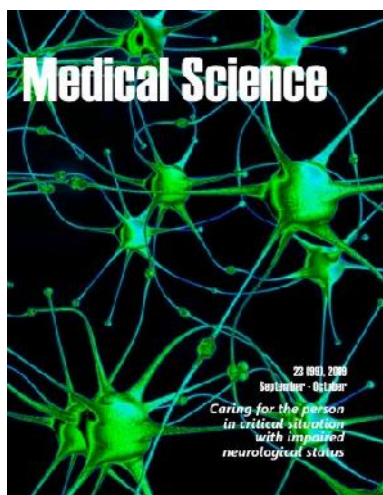


Medical Science

About the Cover



It is scientifically relevant that nurses who provide care to people in critical situations with impaired neurological status adopt preventive interventions of intracranial hypertension, which promote oxygenation and cerebral perfusion and consequently encourage a better neurological outcome. The best practice guidelines for nursing care established, was aimed at improving the quality and uniformity of nursing interventions in caring for the person in critical situations, in practice environments where patients with impaired neurological status, as the operating room (OR), the Intensive Care Medicine (ICM) and the Emergency Room (ER), predominate. In order to enrich, adapt and validate the theoretical synthesis of their guide, this one was submitted to the appreciation of a panel of 15 nurses who were experts in Medical-Surgical Nursing. The guide is a pertinent support to the decision of nursing prescription, which is a promoter of the best neurological outcome of the person in critical situations with impaired neurological status. (Ref: Licinia Barreto, Luísa Santos. Caring for the person in critical situation with impaired neurological status. *Medical Science*, 2019, 23(99), 622-627).

ANALYSIS

Caring for the person in critical situation with impaired neurological status

Licinia Barreto, Luísa Santos

It is scientifically relevant that nurses who provide care to people in critical situations with impaired neurological status adopt preventive interventions of intracranial hypertension, which promote oxygenation and cerebral perfusion and consequently encourage a better neurological outcome. The best practice guidelines for nursing care established, was aimed at improving the quality and uniformity of nursing interventions in caring for the person in critical situations, in practice environments where patients with impaired neurological status, as the operating room (OR), the Intensive Care Medicine (ICM) and the Emergency Room (ER), predominate. In order to enrich, adapt and validate the theoretical synthesis of their guide, this one was submitted to the appreciation of a panel of 15 nurses who were experts in Medical-Surgical Nursing. The guide is a pertinent support to the decision of nursing prescription, which is a promoter of the best neurological outcome of the person in critical situations with impaired neurological status.

Medical Science, 2019, 23(99), 622-627

RESEARCH

Efficiency of *Taraxacum officinale* leaves extract in alleviating gastric ulcer in male rats

Arwa M Turkistani

The main objective of the current study is to evaluate the potential of *Taraxacum officinale* leaf aqueous extract (TLE) on injury occasioned by ingestion of Non-Steroidal Anti-inflammatory Drugs (NSAIDs), indomethacin (INDO), in Wistar rats. Fifty rats (200-220g) were used for this study. The ulcer was induced by administering 30 mg/kg of the INDO at the last day of the experiment (14 days). The rats were randomly divided into 5 groups. Group I (Contr); rat served as the normal control; group II (INDO) ; ulcer rats, group III; rats received 20 mg/kg Famotidine (FAM) (reference drug), while group IV and group V; rats pretreated with TLE 500 mg/kg and FAM (20 mg/kg)+TLE (500 mg/kg), respectively for 14 days. The rats were sacrificed 4 h post INDO given. The results showed that there were significant decreases in ulcer index, gastric acidity, pepsin activity, gastric oxidative stress biomarkers, serum anti-inflammatory cytokines with a corresponding significant increase in gastric enzyme antioxidant activity and mucin content in pretreated groups compared with INDO group. Histological studies of the gastric walls of pretreated rats showed marked reduction of mucosal injuries in contrast to the INDO group. Results obtained in the present study are suggestive of the fact that TLE contains antioxidant and anti-inflammatory phytochemical properties that may be pathways for the ameliorative effect of the gastric mucosa injury induced by NSAIDs causing ulcer.

Medical Science, 2019, 23(99), 628-638

The effectiveness of compassion-based therapy on pain perception in patients with Acute Coronary Syndrome

Damona Nori, Shahrbanou Jalaei

The purpose of this study is to investigate effectiveness of compassion-based therapy on pain perception in patients with acute coronary syndrome. The research methodology is a quasi-experimental study with pretest-posttest design with a control group. The research statistical population includes all men with acute coronary syndrome in Tehran City in 2017-18. In the first stage, the Death Anxiety Scale was performed as a pretest on subjects. Then, the test group received compassion-based intervention during 8 group sessions. After finishing the therapy sessions, the research tools were performed once more as posttest. Covariance analysis test was used to analyze the data. The results indicated a significant difference in Death Anxiety Scale in the test group. The research findings also showed the effect of compassion-based therapy on pain perception reduction in patients with acute coronary syndrome.

Medical Science, 2019, 23(99), 639-651

ANALYSIS

Comparison of experimental, meta-cognitive and acupressure therapy on men orgasmic satisfaction

Roohallah Bay, Khodabakhsh Ahmadi, Ali Fathi Ashtiani, Mohammad Hossein Zarghami

Sexual satisfaction is one of the most important factors in marital life. The purpose of this study was to compare effect of experimental, meta-cognitive and acupressure therapy on men orgasmic satisfaction. The community of this research is men living in Tehran who have been at least two years of their last permanent marriage, between the ages of 20 and 45, who lived in Iran. This study was conducted in a semi-experimental and pre-test-post-test design with control group. The sample of this study was available from the population referring to health centers and psychology from 2015 to 2016. Selected men were randomly assigned to the groups. In this research, we used inferential statistics test including repeated measurement of mixed method and post hoc test for least significant difference of LSD. SPSS 23 software was used to analyze the data. Measurement tool in this research was a male sexual function questionnaire (IIEF) The results of this study showed that three methods of meta-cognitive therapy, experiential therapy and acupressure therapy are effective on men's orgasm quality. The results showed that there is a significant difference between the quality of men's orgasm in all treatment groups (meta-cognitive therapy, experimental therapy, and acupressure

therapy) compared to the control group ($P < 0.001$). Also, there is no significant difference between acute passion therapy and meta-cognitive therapy and experiential approach. In other words, all three methods have approximately the same effect on men's orgasm quality. Results of this study are shown the effect of experiential therapy, metacognitive and acupressure therapy on the quality of orgasm. According to similar research results, it is necessary to pay more attention to psychological and psycho-physiological interventions; Physiology emphasizes the impact on sexual issues.

Medical Science, 2019, 23(99), 652-659

The effects of various surface treatments on the shear bond strengths of metal Brackets to Restored Teeth by two different Composite

Mashaallah Khanehmajedi, Azadeh Ghaemi, Vahid Nourollahi Fard

The purpose of this study was to determine the shear bond strength of metal brackets bonded to restored teeth using methacrylate and silorane based composites in different methods of composite surface preparation. After cutting the class V cavities at the buccal surfaces of 112 acrylic teeth; half of the teeth were restored with Filtek Z-250 composite and the other half with Filtek P-90 composite. Composite surface in both groups were prepared using 4 surface preparation methods: 1-Diamond bur cutting + Acidic etching; 2- Diamond bur cutting + Acidic etching +; 3-air abrasion 4-air abrasion + Silane, and brackets were bonded to teeth. After being stored in water and applying thermal cycles, the shear strength of the brackets bonded to composite was calculated in the universal testing machine. The amount of residual adhesive and resin was determined with a 5-part index. Data were compared using one-way ANOVA in terms of preparation methods and pairwise comparisons were performed by Tukey test. The mean bond strength of brackets to the Filtek Z-250 composite in preparation methods of the groups was 1- 16.36 ± 5.32 ; 2- 13.11 ± 4.08 ; 3- 12.74 ± 5.21 ; 4- 13.16 ± 3.82 MPa; and for the Filtek P-90 composite was 1- 11.7 ± 3.54 , 2- 8.2 ± 3.25 , 3- 10.41 ± 2.25 and 4- 10.56 ± 3.04 MPa. In all preparation methods, the brackets yielded sufficient bond strength to the composite. In the Filtek P-90 composite surfaces, a greater bond strength was observed in diamond bur + acid etching method ($p < 0.02$). Despite the lower bond strength of metal brackets to composite surfaces, due to their acceptable range and the small amount of residual adhesive, metal brackets were acceptably bonded to the surfaces of teeth restored by silorane-based composite in all composite preparation methods.

Medical Science, 2019, 23(99), 660-669

Relationship between root maturity of mandibular first premolars and the developmental stages of cervical vertebrae in orthodontic patients

Fataneh Ghorbany Javadpour, Nasim Behnam

Estimation of the Cervical Vertebral Maturation (CVM) for detection the skeletal maturation is an interesting issue for researchers. The aim of study is evaluation relationship between the developmental stage of lower first premolar roots and CVM from panoramic X-ray and Cephalogram. This descriptive and cross sectional study was done in 2014. The material was the panoramic and lateral cephalograms of 47 patients in 8-13 years old from archive of orthodontic department in dental school of Ahvaz Jundishapur University of Medical Sciences. According to the CVM evaluation, the most samples (42.6%) are in the CS3 stage. By using the Spearman's correlation test, the correlation between CVM and maturation of first premolar roots ($r=0.04$, $P_value=0.79$), and maturation of upper central incisors roots ($r=0.20$, $P_value=0.17$) are not statistically significant. But there is significant correlation between CVM and age ($r=0.38$, $P_value=0.02$). One of the most important factors in orthodontic treatment planning is detecting growth spurt and dental maturation stages of first premolar roots. For better conclusion we suggest further studies with larger sample sizes in different populations.

Medical Science, 2019, 23(99), 670-677

The effect of different finish line and convergence angle on the marginal fit of Zirconia all-ceramic restorations

Assadollah Ahmadzadeh, Shirin Lavaf, Amir Hossein Sarbazi, Ali Rohani, Sajad Sepehri

The precise degree of marginal fit is one of the most significant criteria for the durable success of all-ceramic restorations. Since the finishing line designs and preparation angles can affect the marginal fit, the aim of the present study was to compare the effect of different finish line and convergence angle on the marginal fit of zirconia all-ceramic restorations. In the present in vitro study a total of four brass dies were designed with Auto CAD software and manufactured with CNC machine (Siemens, SI Numerik 802D-SL; USA) as follow: Die A: Convergence angle of 12° and radial shoulder margin, Die B: Convergence angle of 6° and sloping shoulder of 135° ; Die C: Convergence angle of 6° and radial shoulder margin, Die D: Convergence angle of 12° and sloping shoulder of 135° . A total of 40 plaster dies were divided in four groups of 10 ($n=10$), ten impressions were carried out by the double impression technique with a poly vinyl siloxane impression material for each master die. The impression was poured with type IV Plaster. A ceramic restoration was made for each plaster die then the marginal gaps were measured with SEM. Data were analysed using the two-way analysis of variance (ANOVA) and SPSS ver.16. The lowest mean (\pm standard deviation) marginal gap was observed in group A (31.9423), group D (36.03), group B (40.9537), group C (46.703), respectively. Different convergence angle had significant effect on marginal fitness ($P < 0.05$), but marginal design had no significant effect on marginal fitness ($p > 0.05$) and both of them together could affect on marginal fitness ($p < 0.05$). The type of the finish line did not influence the marginal fit. The convergence angle influences the distance from the edge of the crown to the edge of the tooth finish line. It seems that use the convergence angle of 12 degree and radial shoulder margin can reduce the marginal gap in zirconia all-ceramic restorations.

Medical Science, 2019, 23(99), 678-684

Use of multiloop edgewise archwire for treatment of patients with Skeletal Open Bite and CI III Malocclusion: A Case Series

Fataneh Ghorbany Javadpour

Multiloop Edgewise Arch Wire (MEAW appliance) is a simple, effective and safe technique in the treatment of anterior open bite. Difficult in Prediction of patients' growth and stability of the treatment results has been a challenge for orthodontists and surgeons. MEAW appliance is a modality introduced for treatment CLIII borderline cases with tendency to anterior open bite and acceptable profile. We present 4 cases treated by this technique accompany with other orthopedic appliances for produce normal over jet and over bite. For cephalometric analysis and superimposition we use Dolphin software version 10.5 (Canoga Park, CA, USA). The results of MEAW appliance therapy are relative extrusion of anterior teeth during the growth period, and then correction over jet and overbite and achieved balanced facial profile with improved smile arch. Although tissue impingement on the buccal alveolar process that could be side-effects of this technique must be considered and counteracted. *Conclusion:* MEAW therapy is a plain, reliable and safe technique for treatment of anterior open bite.

Medical Science, 2019, 23(99), 685-693

ANALYSIS

Are measuring CA-125 and RDW in stage III and IV endometriosis helpful for operative planning?

Zahra Tavoli, Fatemeh Tabatabaei, Jayran Zebardast, Ali Montazeri

The aim of this study was to assess the expression of CA-125 (cancer antigen-125) and RDW (red cell distribution width) levels in patients with endometriosis and to compare these biomarkers in stage III and IV of the disease in order to arrange operative planning. This retrospective study was conducted on a sample of women with surgical diagnosis of endometriosis. Surgical reports and laboratory tests were recorded from medical files. According to the American Society for Reproductive Medicine, patients were divided into two groups, stage III and stage IV. Preoperative serum level of CA-125 and RDW were recorded. Then, we analyzed the data using logistic regression analysis to assess the association between the disease stage and these biomarkers. In all the data, 183 patients were available for analysis (96 patients with stage III and 87 patients with stage IV). The comparison between patients with stage III and IV showed that the mean levels of CA-125 and RDW were significantly lower in stages III patients, respectively (58.16 vs. 95.86, $P < 0.0001$; and 13.11 vs. 13.78, $P = 0.007$). The association between stage and these biomarkers as assessed by performing logistic regression analysis indicated that patients with stage IV were more likely to present with elevated levels of CA-125 (OR=1.01, 95% CI: 1.00-1.02) and RDW (OR=1.37, 95% CI: 1.09-1.74). The findings suggest that CA-125 and RDW can predict the severity of endometriosis and clinicians can use these biomarkers in addition to physical examination and ultrasound for operative planning.

Medical Science, 2019, 23(99), 694-699

RESEARCH

Comparison of 6 weeks of high intensity interval training and continuous training on Desnutrin, Adiponectin and Adiponectin Receptor1 genes expression in two subcutaneous adipose tissue and quadriceps muscle tissue of obese male rats

Saeed Rahmaty, Abbas Ali Gaeini, Reza Ghaffaripour, Gholam Reza Salvand, Mojtaba Dolatshahi

Obesity disrupts the regulation of desnutrin, adiponectin and AdipoR1. The purpose of the present study was to compare 6 weeks of HIIT and continuous training on the expression of desnutrin, adiponectin and Adipo R1 genes in two subcutaneous adipose tissues and quadriceps muscle tissue in obese male rats. 30 obese Wistar rats were randomly divided into 3 groups: control (n=10), continuous Training (n=10) and HIIT (n=10). Continuous training and HIIT were performed 6 weeks and 6 sessions per week. Forty-eight hours after the last training session, the adipose tissue and muscle tissue were extracted, and the expression level was assessed using the RT-PCR method. The results of showed that there was a significant difference in the expression of desnutrin ($P=0.011$) and adiponectin genes ($P=0.040$) in the adipose tissue between the continuous training and HIIT groups. However, the expression of desnutrin ($P=0.855$) and Adipo R1 genes ($P=0.565$) of the muscle tissue was not significant between the two groups. It was found in the adipose tissue, continuous training has a greater effect on the expression of Desnutrin and Adiponectin genes than HIIT. However, in the muscle tissue, there is no difference between the HIIT and continuous training in the expression of Desnutrin and AdipoR1 genes. for weight loss HIIT is a better way.

Medical Science, 2019, 23(99), 700-709

Outcomes and complications of maximal Levator Resection for Congenital Blepharoptosis with poor Levator function

Ahmed Said Dawood, Mansour Hassan Ahmed, Khaled Ahmed Abou Sedira, Mohamed Othman Abdel Khalek, Ahmed Hamdy Oreaba

To evaluate the outcomes and complications of maximal levator resection as an alternative to frontalis suspension in cases of congenital blepharoptosis with poor levator function. This prospective study enrolled 39 patients with 50 eyelids, who had congenital ptosis (unilateral or bilateral) with less than or equal to 4 mm of levator excursion, and no history of ptosis surgical

correction. Postoperative evaluation was conducted at 2 weeks, 6 months and 12 months; and included: margin reflex distance-1 (MRD1), lagophthalmos and complications. A post-operative MRD1 of 3 mm or more with a lid symmetry ≤ 1 mm was considered as successful outcome. The mean age at the time of surgery was 3.8 ± 1.7 years (range, 2 to 9 years), with 12 months follow-up duration. Successful outcomes were achieved in 72% of eyelids (36 out of 50), and recurrence was recorded in 5 eyelids (10%). Factors such as preoperative levator function and MRD1 were not correlated with postoperative results. Complications included exposure keratopathy (16%), lid crease asymmetry (8%), entropion (4%), Lid notching (4%), eyelash ptosis (10%), and conjunctival prolapse (2%). The high rate of exposure-related corneal complications was correlated to the prominent lagophthalmos at the early postoperative weeks (3.9 ± 0.7 mm). Maximal levator resection is an effective treatment for congenital ptosis with poor levator function, which provides high rate of successful results and avoids complications of frontalis suspension. As the potential risk of exposure keratopathy is high, the ocular surface should be carefully screened during the early postoperative weeks.

Medical Science, 2019, 23(99), 710-717

ANALYSIS

Serum immunoglobulins and white blood cells: effect of small-sided recreational soccer

Rakesh Tomar, Varghese C Antony

We examined effects of small-sided recreational soccer on serum immunoglobulin and white blood cells in untrained males. Twenty-three male with mean age 18.75 years were randomized into two different groups namely; experimental group ($n = 8$), control group ($n = 15$). Participants in experiment group played four a side supervised recreational football artificial outdoor pitches for sixteen weeks. Participants played football for 30 minutes in each session with two halves of 15-15 minutes. Testing for serum immunoglobulins and white blood cells was performed at designated laboratory as standard protocols. Polar heart rate monitors were used to measure intensity of football sessions. To find significant difference and study effect of recreational football, analysis of covariance was used. Analysis of covariance did not find any significant difference between experimental group and control group in IgA ($F_{1,17} = .103$, $p = .752$), IgG ($F_{1,17} = 6.47$, $p = 0.021$) and IgM values ($F_{1,17} = 6.71$, $p = .019$). We did find a significant difference in total white blood cell count between intervention and control group ($F_{1,17} = 4.549$, $p = .048$), Neutrophil ($F_{1,17} = 4.743$, $p = .044$) and Eosinophil counts ($F_{1,17} = 4.321$, $p = .053$). However, there was no significant change observed in Lymphocytes counts ($F_{1,17} = 1.952$, $p = .180$), Monocytes ($F_{1,17} = 2.649$, $p = 0.122$) and Basophil counts ($F_{1,17} = 1.241$, $p = .281$). Neutrophil and total WBC counts increased significantly whereas eosinophil counts decreased significantly post football sessions. Four-sided recreational football did significantly change serum immunoglobulin (IgG and IgM) but failed to bring any significant change in serum IgA values in untrained males. Neutrophil and total WBC counts increased significantly whereas eosinophil counts decreased significantly post football training.

Medical Science, 2019, 23(99), 718-723

RESEARCH

The effect of gait enhancer mechanism on functional balance and endurance of walking in children with Cerebral Palsy

Saeid Fatorehchy, Seyed Ali Hosseini, Hojjat Allah Haghgoo, Samaneh Hosseinzadeh

The purpose of this study was to investigate the effectiveness of Gait Enhancer Mechanism on functional balance and walking endurance in children with cerebral palsy. We designed a new gait trainer according to Theo Jansen mechanism. Two separated Jansen linkages were placed on both sides of a frame and were connected to the lower limb at the ankle joint by a plate under foot. This experimental research organized in a single subject system, A-B-A design for four children with spastic diplegic cerebral palsy from level III of gross motor function classification system. This method includes repetitive measures in three phases, baseline and intervention and then maintenance. All the participants received conventional occupational therapy during the study period. They had 18 gait training sessions, 3 times per week, with *Gait Enhancer Mechanism* for 30 minutes in intervention phase. Pediatric balance scale and 6-Minute walk test were performed to evaluate functional balance and walking endurance, respectively. Results were considered by visual graphs and statistically by measuring Non-overlap indices and Cohen's d. The results indicated significant improvement in both functional balance and covered distance in 6-Minute walk test. Cohen's d which represents the effect size was greater than 0.8 for all subjects. Functional balance and walking endurance were improved in children with cerebral palsy following gait training with Gait Enhancer Mechanism besides conventional occupational therapy.

Medical Science, 2019, 23(99), 724-731

ANALYSIS

The effect of iso-osmolar riboflavin 0.1% on corneal thickness in corneal collagen cross-linking combined ultraviolet A irradiation

Farah Maqsood, Reem F Almagati

To monitor central thickness changes prior to corneal collagen cross-linking combined ultraviolet A irradiation, using iso-osmolar riboflavin 0.1%. Corneal thickness was measured pre-operatively before epithelial removal. Corneal thickness following epithelial debridement was calculated via subtracting 50 μm . Iso-osmolar riboflavin 0.1% was instilled into the eye every two minutes for ten minutes. Corneal thickness before and after instillation of iso-osmolar riboflavin was compared using Wilcoxon SPSS test. 34 eyes of 17 patients were included in this study. The mean spherical refractive error for all participants was -2.14 ± 1.95 D and the mean astigmatism was -1.35 ± 1.04 D. Measured pachymetry was found significantly higher than calculated pachymetry for all participants. In female subjects, the difference between calculated and measured pachymetry was not statistically significant, when bed hydration was and was not performed, p -values were 0.508 and 0.93 respectively. In male subjects, the difference between calculated and measured pachymetry was statistically significant for all the eyes. Iso-osmolar riboflavin can cause a temporary increase in corneal thickness. However, when corneal swelling is desired in thin corneas, use of hypo-osmolar riboflavin may be more effective in preventing any subsequent damage.

Medical Science, 2019, 23(99), 732-736

RESEARCH

Determination of diagnostic value of inferior vena cava diameter in distinguishing cardiac causes from non-cardiac causes in patients with acute dyspnea

Javad Ramezani, Mohsen Abdollahi, Mohammad Davood sharifi, Mahdi Foroughian, Neema John Mehramiz, Shahram Keikha, Amir Masoud Hashemian

Cardiac insufficiency is a major cause of mortality and morbidity in the world. In a patient with acute dyspnea in emergency department, physicians use various diagnostic methods such as history taking and physical examination. In physical examination findings as orthopnea, increasing jugular venous pressure (JVP), *Gallop* Rhythm suggests acute heart failure (AHF). The use of CXR and BNP are paraclinical methods that can support the findings, but are time and cost consuming. Bedside ultrasound is a quick and accessible method for emergency staff to detect AHF from other cause of dyspnea. The aim of this study was to determine the diagnostic value of inferior vena cava diameter (or IVC) clinically in differentiating cardiac causes from non-cardiac causes in patients with acute dyspnea. This prospective and observational study was carried out using convenience sampling among patients referred to the Emergency Department. Patients with acute dyspnea were included in the study. After assessing the previous history of the disease, diagnostic strategies and initial treatment started for patients. For all patients, chest-x-ray (CXR) was performed and then underwent IVC ultrasound examination. The caval index was also calculated after the measurement of IVC diameter in the inhalation and exhalation. In these study 173 patients included, 51 patients have cardiac and 122 patients have non-cardiac diagnosis. After the CXR examination, it was found that 23 patients have interstitial pulmonary edema, where a significant relationship was found between CXR and final diagnosis ($P < 0.001$). Caval index was calculated for all patients and its sensitivity and specificity in the diagnosis of non-cardiac disease was determined. Cut-point for caval Index was 38.97. The sensitivity and specificity of this criterion in the diagnosis of cardiac disease were calculated as 92.2% and 91%, respectively. Caval index (< 38.97) is capable of showing causes of cardiac disease in patients with dyspnea.

Medical Science, 2019, 23(99), 737-744

Shear bond strength of ceramic brackets bonded on the composite surfaces prepared with CO₂ Laser, Chromium Erbium, and Etching Acid

Meysam Noori, Mashallah Khanemasjedi, Nasim Ghorani

Recently, the use of ceramic brackets in the orthodontic treatments has been increased due to its inherent esthetic results. In adult orthodontic patients, the ceramic brackets should be bonded to composite restorations on the patients' teeth sometimes. The routine surface preparation method for composite restorations is etching by acid phosphoric; however, laser irradiations have been used in this regard recently. This *in vitro* study compared the shear bond strength of the ceramic brackets bonded to the composite restorations following preparations by CO₂ and Er;Cr:YSGG lasers and conventional phosphoric acid etching. In this *in vitro* trial, class V cavities were prepared on the buccal surfaces of 60 acrylic central teeth by the dimensions of 7×6×2mm and restored using Z100 composite after etching by 37% phosphoric acid gel. The specimens' surfaces were randomly prepared by 37% phosphoric acid gel or Er;Cr:YSGG (power: 3W, wavelength: 2780nm and frequency: 20Hz) or CO₂ lasers (power: 3W, wavelength: 10600nm and frequency: 20Hz). The ceramic brackets were bonded to the composite restoration surfaces. The specimens were stored in the distilled water for 24 hours at 37C° and received thermal cycles for 500 times. Shear bond strength of the brackets to composite surfaces were measured on the universal testing machine by the crosshead speed of 0.5 mm/min. After brackets' debonding, the scores of the remaining adhesive on the surfaces were calculated by ARI index in 5 scales. The shear bond strength values were subjected to one-sided analysis of variance and Tukey tests while the ARI scores were analyzed by Chi-square test. The shear bond strength of the ceramic brackets to the surfaces of composite restorations were found to be 12.34±4.34 MPa, 17.62±5.08 MPa and 13.72±4.10 MPa using routine acid phosphoric etching and irradiation of Er;Cr:YSGG and CO₂ etching respectively ($p < 0.001$). The mean shear bond strength of the ceramic brackets to the surfaces of composite restorations following Er;Cr:YSGG laser irradiation was significantly higher than CO₂ laser irradiation ($p < 0.02$) and acid etching ($p < 0.001$). However, no significant differences were found between acid etching and CO₂ laser in this regard. Er;Cr:YSGG laser irradiation showed the best results in terms of ARI scores

and significant differences existed among the studied surface preparation techniques in terms of adhesive remnant scores ($p < 0.001$). Then; all surfaces preparation methods showed adequate bond strength between the ceramic orthodontic brackets and composite restorations. Although, CO₂ and Er:Cr:YSGG lasers are suggested for the clinical applications due to adequate bond strength created between the brackets and composite surfaces as well as advantages such as lower chair time and no damage to the gingival tissues.

Medical Science, 2019, 23(99), 745-756

Developing a national database for Iranian injury and safety literature: SafeLir

Homayoun Sadeghi-Bazargani, Faramarz Poursaghar, Hamid Soori, Ali Bahari, Fahimeh Bakhtyari, Alireza Moghisi

Doing a comprehensive search in scientific databases is one of the primary inevitable steps for every scientific work. This study presents steps for developing a national database for Iranian injury and safety literature. A search strategy was build using injury-related keywords using Emtree database. Online databases were searched for retrieving injury related information in Persian and English languages. Potential documents were retrieved and imported to a temporary Microsoft Access database. After reviewing, the relevant documents were selected and imported to SafeLir database [SLD] by two trained reviewers. The SLD was designed with multilayer structure using several programming languages, and currently it is being run in beta version. The performance assessment of the SLD along with PubMed, SafetyLit, SID and Scopus databases showed that it is well-suited for its goals. The SLD includes all features expected by researchers and it can be used both in injury research and community safety promotion.

Medical Science, 2019, 23(99), 757-768

ANALYSIS

Psychological predictors of emotional divorce: A structural equation approach

Younes parvaz, Maryam Bakhtiari, Abbas Masjedi Arani, Maryam Aslzaker

The aim of current study was to predict emotional divorce based on emotional schemas attachment styles and with the mediating role of Gottman four factors (contempt, criticism, defensiveness, stonewalling) in married people. The type of study was cross-sectional. by multistage cluster sampling 336 (female 204, male 132) subjects were recruited to participate in the study. Gottman Four Horsemen of Apocalypse questionnaire, emotional divorce questionnaire, emotional schemas questionnaire and attachment styles questionnaire were administered. Collected data were analyzed using structural equation modeling approach. AMOS software package and SPSS applied to doing so. Findings showed a good model fit indices with removing emotional schemas construct. Emotional schemas couldn't play a predicting role in association with other study variables. And had no significance relationship with emotional divorce through mediating role of Gottman Four Horsemen of Apocalypse. But attachment styles and Gottman Four Horsemen of the Apocalypse constructs (contempt, criticism, defensiveness, stonewalling) could predict emotional divorce and had a good model fit indices (RMSEA: 0.05, CFI: 0.986, NFI: 0.952, GFI: 0.973). based on our results attachment styles through Apocalypse constructs (contempt, criticism, defensiveness, stonewalling) can have a significant role on emotional divorce. Thus, for improving the relationship between couples and reducing emotional divorce psychotherapists and couple therapists could implement effective psychotherapies or couple therapies for improving destructive effect of these variables. Contempt, criticism, stonewalling and defensiveness are deleterious factors that can damage marital relationship.

Medical Science, 2019, 23(99), 769-777

CASE REPORT

Colonic rupture following Blunt Abdominal Trauma: A diagnostic dilemma to the surgeon

Ismail Burud, Ahmad Ibrahim Yahaya, Jasiah Zakaria, Sherreen Elhariri

Industrialization, changing life style, newer modes of recreational sports like jet ski, buggy rides, donut boating has added to the woes of trauma by increasing the morbidity and mortality. Abdominal injuries occur in approximately 41% of all trauma patients. Blunt Abdominal trauma (BAT) can occur as a part of polytrauma or in isolation. Injury to the hollow viscus is less common in blunt trauma when compared to penetrating abdominal trauma. BAT can be silent initially and as time progresses can cause fatal complications. We present a case of a 21-year-old male who sustained trauma to the abdomen following hit by a donut boat. He had mild abdominal pain for 4 days. He presented to the hospital on the 5th day and computerised tomography (CT) of the abdomen was done which was suggestive of a Gastro intestinal stromal tumour (GIST)/ Hematoma. His condition worsened in the ward and a laparotomy was performed. Intraoperatively there was transection of the ascending colon near the hepatic flexure with faecal contamination surrounded by the small bowel and the mesentery. Right hemicolectomy with double barrel stoma was done. His post-operative recovery was uneventful. Blunt abdominal trauma can have a delayed presentation. Isolated colonic rupture is very rare. CT is a very good investigative tool however a correct diagnosis of the extent of injury may not be possible. Laparotomy with one stage of two stage procedure is the treatment for such injuries.

Medical Science, 2019, 23(99), 778-781

ANALYSIS

Control of *Mycobacterium tuberculosis* and activity by ELF-EM pulses at Resonance Frequency

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Tuberculosis as a major worldwide human disease, caused by *Mycobacterium tuberculosis* (MTB), is the second most fatal infectious disease after AIDS and one of the most prevalent pathogen that is responsible for socioeconomic disaster for millions of people than any other microorganism. For this purpose, MTB strain H37Rv was exposed to different square electric pulses of extremely low frequency (ELF) generated between two parallel plate electrodes, at different frequencies in the range 0.1 to 1Hz for a period of 30 minutes. The field strength between the electrodes was 400V/m. From the growth characteristics of the microbe for control (non-exposed) and exposed samples, it was found that maximum inhibition in the growth characteristic of the microbe occurred for samples exposed to 0.6 Hz for 45minutes. Transmission electron microscope (TEM) examination of the treated samples as compared with control indicated remarkable morphological changes in the cell walls and inter-constituents of microbe. Antibiotic Sensitivity test indicated significant increase in the inhibitors for protein synthesis susceptibility, cell wall biosynthesis and RNA as the result of exposure. It was concluded that this new non-invasive treatment of MTB is a promising technique to treat and resist this disease.

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A comparative study between foldable Iris Claw Lens and ICL (Implantable Collamer Lens) Phakic iols in correcting moderate and high Myopia

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The purpose of this study is to compare between implantation of anterior chamber iris-fixated foldable phakic IOLs and posterior chamber phakic IOLs in patients with moderate to high myopia. The study included forty eyes with high myopia. Twenty eyes, with spherical error ranging from -9.0D to -15.0D, were implanted with VeriFlex. Other twenty eyes, with spherical error ranging from -8.0D to -18.0D, were implanted with ICL, followed up for one year postoperative. The BCVA improved one to two lines from the preoperative values in both types and the refractive results of both types were stable. In VeriFlex no postoperative rise in IOP, while in ICL, only one eye developed acute rise of IOP in the first day postoperative, this was due to insufficient size of PI. VeriFlex led to 5.4% decrease in the mean endothelial cell count, while ICL led to a much less decrease (1.53%) in the mean endothelial cell loss at the end of the follow up period with statistically highly significant difference ($P < 0.001$). Postoperative uveitis in VeriFlex disappeared after one month, while in case of ICL; it disappeared after one week. Pupil ovalization was reported only in one eye in case of VeriFlex group. One eye only with ICL developed lens opacity which was due to low vault. This study proved that regarding the post-operative visual acuity, glare, halos and complications both types of pIOLs had similar results, but the ICL was superior over the foldable anterior chamber PIOL as regards the corneal endothelial cell loss.

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RESEARCH

Protective effect of pumpkin seed oil against hepatotoxicity and nephrotoxicity in rats administered high doses of aspartame

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Aspartame, an artificial sweetener, is widely used in food and beverage production. However, high doses of aspartame may induce various organotoxic effects. Pumpkin seed oil (PSO) possesses antioxidant properties owing to high biologically active compound content. This work aimed at evaluating the toxic effects of supplementation of high doses of aspartame in rats and the possible protective effects of PSO against this toxicity. Rats were randomized into three groups: control, aspartame, and aspartame+PSO groups; administered a daily dose of 1000 mg/kg b.wt dissolved in water and pumpkin seed oil at a dose of 4 ml/kg b.wt for four weeks. Liver and kidney function tests as well as tissue oxidant/antioxidant biomarker levels, liver and kidney DNA content, percentage of DNA fragmentation, and histological examinations were performed. The administration of high doses of aspartame impaired liver and kidney function and also induced oxidative stress in liver and kidney. Treatment with PSO demonstrated the ability to protect the liver and kidney against aspartame toxicity and indicated its role in ameliorating the toxic effects of aspartame in rats.

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ANALYSIS

The effect of Lymphedema self-management group-based education on fear of cancer recurrence in women with breast cancer: A clinical trial

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Breast cancer-related lymphedema is a chronic problem after breast cancer surgery, which cause physical symptoms and are, therefore, considered as signs of cancer recurrence by patients and triggers fear of cancer recurrence. Fear of cancer recurrence, as one of the most common problems of cancer survivors, is associated with reduced adherence to lymphedema self-management

behaviors. This study aims to investigate the effect of lymphedema self-management group-based education on fear of cancer recurrence in women with breast cancer. This research is a clinical trial with two groups conducted on 70 patients with breast cancer-related lymphedema in the past one year in Seyed-Khandan rehabilitation center. The women participating in the study were assigned to one of the two groups group-based education (GE) (n=35) and the control group (CO) (n=35) using a random block method with a size of two-people. In addition to the routine lymphedema treatment that done for all patients, the group-based education group also received self-management education in five sessions in groups of five. Fear of cancer recurrence was assessed in the two groups before, immediately after, and three months after the intervention using the short form of the fear of disease progression questionnaire. During three months, the mean score of fear of cancer recurrence from 34.4 to 31.8 ($p=0.112$) in the group-based education group, and from 36.6 to 35 ($p=0.242$) in the control group. Although mean score of fear of cancer recurrence reduced more in the intervention group than in the control group, changes in score of fear showed no statistically significant difference immediately ($p=0.287$) and three months ($p=0.099$) after the intervention. Lymphedema self-management education was associated with reduced score of fear of cancer recurrence. Lack of observe a meaningful relationship in the difference in fear scores between the two groups may indicate the impact of other related factors or the use of other educational methods, which emphasizes the need for further research in this regard. This study was registered in the Iranian Center for the Registration of Clinical Trials under the number (IRCT2017052834176N1).

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REVIEW

Technology assessment of long-pulsed Alexandrite laser device for hair removal: A systematic review

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Excessive hair removal is one of the issues discussed specifically in cosmetics. To this end, various methods are available, such as the electrolysis, chemicals, etc., but each of these methods provides advantages and disadvantages. Alexandrite laser device laser is one of the most popular systems available and suitable for skin type's I-IV. In this study we aimed to evaluate this device to determine whether it can be used as an alternative device for other devices. A comprehensive search was conducted in 6 July 2019 via Medline (PubMed), Cochrane Library, Scopus, CRD, NIHR HTA, web of science, Clarivate and ProQuest databases using PICO-based selected keywords. Afterwards, the retrieved studies were selected by two reviewers. Studies with no inclusion criteria were excluded. Then, selected studies were assessed by two evaluators using CASP International tool. Finally, five studies were selected and the obtained data were meta-analyzed by RevMan 5.2 software. In order to compare the costs and outcomes, the Incremental Cost-effectiveness Ratio (ICER) index and the sensitivity analysis were implemented. This method is effective and safe. Short-term complications in Diode laser are more than the Alexandrite, Whereas Nd:YAG lasers and Intense Pulsed Optical Systems (IPLs) generally show less complications than Alexandrite. Patient satisfaction was not different between any of the methods. There was no difference between the long-pulsed Alexandrite laser, Diode laser, and IPL systems in light of therapeutic effects, but the only significant difference was seen in reduction rate of the mean amount of hair. The long-pulsed Alexandrite laser reduced it 16.62% more than the Nd:YAG laser.

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