

# Medical Science

## About the Cover



Ventricular septal defect (VSD) is the most common pathology among congenital heart diseases. Surgical closure, transcatheter closure or medical follow-up are among the treatment strategies. Surgical closure of VSD can now be safely performed with low morbidity and mortality. In this study, we aimed to compare the efficacy of blood cardioplegia and del Nido cardioplegia during VSD operation. In our Pediatric Cardiovascular Surgery Clinic, we retrospectively evaluated 186 patients, between 6 weeks and 18 years of age, who underwent operation due to isolated VSD between September 2013 and December 2017. Patients were divided into two groups as Group 1 (n = 108 using blood cardioplegia) and Group 2 (n = 78 using del Nido cardioplegia). Pre-operative data, peri-operative data and post-operative data of patients were retrospectively recorded and reviewed in detail. 153 patients (82.2%) were under 5 years old, 24 (12.9%) were between 5 and 10 years old, and 9 (4.8%) were between 10 and 20 years of age. 112 (60.2%) of the patients were male and 74 (39.8%) were female. The mean age of the patients was  $3.8 \pm 2.08$  in Group 1 and  $4.2 \pm 2.13$  in Group 2. There was no statistically significant difference in preoperative demographic data between Group 1 and Group 2 patients ( $p > 0.05$ ). The duration of cardiopulmonary bypass (CPB), duration of intubation, intensive care unit stay and discharge time were found to be statistically significant when compared with Group 1 ( $p < 0.05$ ). Congenital heart disease cases can have a long operation time. In the light of our findings, we recommend the use of del Nido cardioplegia, which is administered a single-time and reduces inotropic need and duration of operation as well as significantly reduce extubation and discharge times, instead of blood cardioplegia which is given every twenty minutes. It can be said that del Nido cardioplegia can be safely used in the cases of congenital heart surgery, although it is difficult to give a definitive judgment due to the inadequacy of our case count (Babürhan Özbek, Ali Kemal Gür, Mehmet Co kun Aykaç, Esra Eker. Comparison of Blood Cardioplegia and Del Nido Cardioplegia Use in Isolated VSD Patients. *Medical Science*, 2018, 22(92), 372-376).

## RESEARCH

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### **Ultrasonography-Assisted Infraclavicular Block in Upper Extremity Surgery with 3 Different Bupivacaine Doses**

Fatih Dogu Geyik, Yucel Yuce, Zakiye Likoglu, Necati Citak

Ultrasonography in peripheral nerve blocks without nerve stimulator has become increasingly widespread. We tried to determine the minimum effective bupivacaine dose using three different constants of bupivacaine. 60 patients with the infraclavicular brachial block in hand, wrist, and forearm surgeries were evaluated prospectively. Group I: 20 ml bupivacaine 0.5% + 5 ml serum physiologic+ 5 ml lidocaine, Group II: 15 ml bupivacaine 0.5% + 10 ml serum physiologic + 5 ml lidocaine Group III: 10 ml bupivacaine 0.5 + 15 ml SF + 5 mL of lidocaine was administered. We recorded the demographic data, motor and sensory block onset times, VAS scores, patient, surgeon and anesthetist satisfaction. There was no statistical difference in age, sex, and ASA among the groups ( $p = 0.272$ ,  $p = 0.169$  and  $p = 0.432$ , respectively). Neither local anesthetic toxicity, neurological complications nor drug allergy was observed in any of the patients. In all cases, the VAS at the 24th hour was  $4.9 \pm 1.2$  when the 6th hour VAS was zero. There was a statistically significant difference between groups regarding 24-hour VAS ( $p = 0.03$ ). Ultrasonography improves the success rate of the infraclavicular block and reduces the associated complications. We believe that single-point injection by ultrasonography is successful in constellations where 10 ml bupivacaine and 5 ml lidocaine are added on selected occasions.

*Medical Science*, 2018, 22(92), 357-363

## ANALYSIS

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### **Study of the status of access to the information and quality improvement in radiology department of the five teaching hospitals**

Ahmad Hajebrahimi, Siamak Aghlmand, Seied Mojtaba Hosseini, Tahereh Behrouzlak

The aim of this study was to determine the status of quantitative and qualitative control of X-ray exposure in the radiology departments of the teaching hospitals of Urmia University of Medical Sciences. This study was a mixed method study that was conducted in 5teaching hospitals on 2017. Data collection was done by structural interviewing with the department staff and study of their submitted documentations. From 27 devices in the radiology units in teaching hospitals of the University, five was digital devices. The number of analog portable devices was 15, of which 3 were out of the date. The average rate of repeated (or rejected) images to all exposures in hospital No-2 was 0.093 and 0.11, respectively. The percentage of exposure elimination to the total exposure in hospital No-3 was 0.073. In hospital No-1 and No-4, the access to user information was not possible due to the lack of prediction in the software system of radiological devices. By adopting appropriate quality control system, the rates of the safety of patients and staff can be increased.

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### **Comparison of Blood Cardioplegia and Del Nido Cardioplegia Use in Isolated VSD Patients**

Baburhan Ozbek, Ali Kemal Gur, Mehmet Coskun Aykac, Esra Eker

Ventricular septal defect (VSD) is the most common pathology among congenital heart diseases. Surgical closure, transcatheter closure or medical follow-up are among the treatment strategies. Surgical closure of VSD can now be safely performed with low morbidity and mortality. In this study, we aimed to compare the efficacy of blood cardioplegia and del Nido cardioplegia during VSD operation. In our Pediatric Cardiovascular Surgery Clinic, we retrospectively evaluated 186 patients, between 6 weeks and 18 years of age, who underwent operation due to isolated VSD between September 2013 and December 2017. Patients were divided into two groups as Group 1 ( $n = 108$  using blood cardioplegia) and Group 2 ( $n = 78$  using del Nido cardioplegia). Pre-operative data, peri-operative data and post-operative data of patients were retrospectively recorded and reviewed in detail. *Findings:* 153 patients (82.2%) were under 5 years old, 24 (12.9%) were between 5 and 10 years old, and 9 (4.8%) were between 10 and 20 years of age. 112 (60.2%) of the patients were male and 74 (39.8%) were female. The mean age of the patients was  $3.8 \pm 2.08$  in Group 1 and  $4.2 \pm 2.13$  in Group 2. There was no statistically significant difference in preoperative demographic data between Group 1 and Group 2 patients ( $p > 0.05$ ). The duration of cardiopulmonary bypass (CPB), duration of intubation, intensive care unit stay and discharge time were found to be statistically significant when compared with Group 1 ( $p < 0.05$ ). Congenital heart disease cases can have a long operation time. In the light of our findings, we recommend the use of del Nido cardioplegia, which is administered a single-time and reduces inotropic need and duration of operation as well as significantly reduce extubation and discharge times, instead of blood cardioplegia which is given every twenty minutes. It can be said that del Nido cardioplegia can be safely used in the cases of congenital heart surgery, although it is difficult to give a definitive judgment due to the inadequacy of our case count.

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### **Evidence based medicine summer school for undergraduate medical students using innovative methods**

Farhadi Fereshteh, Mostafaie Hadi, Taleschian-Tabrizi Negar, Hajebrahimi Sakineh, Madani Neda, Hajebrahimi Mohammadali, Parnianfard Neda, Abbaspour Morteza, Talebpour Amin, Pashazadeh Fariba

There is a clear need to train next generation clinicians in order to keep up-to date and ensure the best practice for patients. The aim of this study was to report the procedure of summer school held in Tabriz University of Medical Science, 2013. Students learnt about Evidenced Based Medicine (EBM) efficiently. Incorporating, interactive and innovative teaching methods were highlighted in this study. A one week Summer school was held involving 60 medical students in Tabriz University of medical sciences in August 2013. They had learned about EBM and how to apply it using modern interactive ways, including Team-Based Learning (TBL), seminar-style presentation, introducing EBM journal club by using acting, moreover Interactive approaches, encouraging the sense of creativity and inspiration. Effectiveness of workshops was assessed utilizing pre- and post-course questionnaire and reflective journals. 29 students completed the pre-and post-course questionnaire. 82.8% (24 trainees) gain knowledge about the definition of EBM. 75.9% (22 trainees) partly trusted in the quality of articles which are published in well-known journals because they feel the need to critically appraise the evidences by themselves. Selecting the best evidences for answering clinical questions, students rely on RCTs 37.9% (11) and systematic reviews 27.6% (8). According to the outcomes of reflective journals, they referred to systematic reviews as the most difficult part and found appraising tools the most useful course. This EBM summer school deepened the medical students' impression of EBM and was efficient, according to the results of the post-course questionnaire. They found this summer school useful, fun and satisfying.

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### **Should Plication or Graft be used in Pulmonary Artery Aneurysm operations?**

Baburhan Ozbek, Ali Kemal Gur, Mehmet Coskun Aykac, Mahmut Yargı

Pulmonary artery aneurysms (PAA) are rare diseases generally diagnosed coincidentally. Although most of the PAA patients are asymptomatic, they can be symptomatic due to complications such as rupture, pulmonary valve leakage, thromboemboli, dissection and pressure on coronary arteries and pulmonary valve. Our aim in this study was to compare plication and graft usage techniques in PAA operations. A total of 11 patients who had elective PAA operation between January 1, 2010 and December 31, 2018 in our clinic and had registered demographical information were retrospectively examined. Patients included in the study were separated into two groups as those who had plication in PAA (Group 1) and those who had tube graft change in PAA (Group 2). There were six patients in Group 1 (2 F, 4 M) and five patients (2 F, 3 M) in Group 2. Preoperative and postoperative data of the patients in both groups were registered and examined in detail. *Findings:* Among the 11 patients who had surgical repair

due to PAA, seven were male and four were female. Although the ages of the patients changed between 38 and 65, the average age was 53.4 years. There was no significant difference in diabetes mellitus, hypertension, coronary artery disease among the groups. Chronic obstructive pulmonary disease (COPD) was observed more in Group 1. Operations were made under cardiopulmonary bypass. Aortic cross clamp duration (ACC) was  $96 \pm 18$  minutes in Group 1 and  $105 \pm 22$  minutes in Group 2 ( $p > 0.05$ ). Average intensive care unit hospitalization duration of the patients was  $2.5 \pm 1.5$  days in Group 1 and  $3.4 \pm 1.5$  days in Group 2 ( $p < 0.05$ ) but no statistically significant difference was found among the average hospitalization durations of the patients ( $p > 0.05$ ). Although observed frequently, PAA can cause mortality especially due to causes such as rupture and dissection. Surgical intervention is required in patients with PAA over 5.5 cm. Although different views are available in literature, in our study, we detected tube graft usage to be more effective in surgical treatment. As there is a change of aneurysm reformation in postoperative follow-ups of the patients who had plication especially, we suggest graft usage in PAA surgical treatment.

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### **The effect of educational intervention on the components of PRECEDE model in hypertension patients**

Farshad Mohammadi, Meimanat Hosseini, Mahsa Matbouei, Reyhaneh Sefidkar

Hypertension is one of the common and dangerous diseases and the most important risk factor of incidence of cardiovascular diseases, stroke, and kidney failure. As with most chronic diseases, this disease is closely associated with the lifestyle of patients. The most useful application of PRECEDE model is interpreting the factors associated with behavior. The aim of this research was to determine the effect of educational intervention on the components of PRECEDE model in hypertension patients. This research was experimental, in which 40 subjects were in the test group and 40 other subjects participated in the control group. The educational intervention was designed based on PRECEDE model and implemented in the test group. The data collection instrument was a researcher made questionnaire including health demographic characteristics as well as the PRECEDE model constructs questionnaire. The data were collected before, immediately after and 45 days after the educational intervention. They were then analyzed by SPSS version 20. The mean scores of the precipitating factors (awareness and attitude), enabling factors (acquiring skill in measuring blood pressure), reinforcing factors (the encouragement and support by friends and acquaintances), and behavioral factors (consumption of fruits and vegetables, fatty and fried foods, smoking) were significantly higher in the test group, compared to the control group ( $P > 0.05$ ). Educational intervention based on PRECEDE model is effective in raising the scores of precipitating factors, enabling factors, reinforcing factors, and behavioral factors in hypertension patients. Therefore, it is suggested that this model be used for educating and determining the factors affecting controlling hypertension in patients.

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### **Cost analysis of Medical diagnostic Services of Hormone section of the central laboratory in Iran's East Azerbaijan Province using activity-based costing method in 2013**

Ali Imani, Behrooz Sabeti Sis, Ali Janati, Mina Golestani

The most basic financial data required for a laboratory manager consist of costs allocated to the cost units. The analysis of cost can promote the management performance in budgeting, strategic planning, privatization, accrual accounting and in overall performance of an organization. This study analyzed and estimated the unit cost of laboratory services of hormone sector of East Azerbaijan central laboratory using activity-based costing in 2013. This study is conducted as cross-sectional and retrospective. For this purpose resources and activities of the hormone sector were selected as received high tariffs against the other sectors. The data gathered using forms, financial and laboratory software, interviews and direct observation which eventually an analysis were performed using the software Excel 2010 and the finally unit cost were calculated. The results from East Azerbaijan central laboratory (EACL) shows that the highest and lowest references are Labor costs 59%, Depreciation expense 1.25% of total costs related to Hormone sector respectively. The highest cost was due to Growth hormone (GH) testing and the lowest cost was due to Thyroid (TSH) testing. And finally calculated average cost differs 11% from the tariffs approved by the Iranian Ministry of Health (MOH). According to the high volume of testing operations and consequently the deployment of skilled human resource and specialized equipment, central laboratory will be faced with a budget deficit if the tariff is not amended.

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## CASE REPORT

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### **Medullary Carcinoma Thyroid surgery associated with Multiple Endocrine Neoplasia Type 2B (MEN 2B): a case report**

Loghman Ghaderi, Fazel Dehvan, Shahnaz Ghafoori, Ramesh Rahegh, Jamal Seidi

MEN2B syndrome is a syndrome associated with systemic malignancies such as carcinoma of the thyroid and pheochromocytoma. An 18-year-old male patient with a neck mass was admitted to the Besat hospital in Sanandaj in 2015. In the clinical examination we found a long and delicate face, multiple lesions in the tongue, cheek and lips, atrophy of the temporal mandibular, and mandible protrusivity in the x-ray. It was remarkable that a positive family history was not found and there were no signs and symptoms of pheochromocytoma. According to the pathology, MEN2B syndrome and final diagnosis of medullary thyroid carcinoma was confirmed and total thyroidectomy surgery and left incomplete thymectomy was conducted. With detection of non-endocrine symptoms of MEN2B and prophylactic thyroid surgery, we may expect a better prognosis. Most cases of medullary thyroid carcinoma associated with the syndrome occur in the age of 20 years. And there is a more possibility of invasion to the surrounding tissues. This condition was introduced in accordance with the patient's condition.

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## RESEARCH

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### **Multigenerational transition of fertility and family values in rural families of Iran: A life history and narrative research**

Zohreh Najafi Asl, Mahmoud Ghazi Tababtabei, Abou Ali Vedadhir

The widespread changes in the context of globalized world have affected Iranian society in general and its' rural communities in particular. This article examines the generational changes in familial values, attitudes, and reproductive practices in rural families in Iran. Using the life history and narrative research strategy, two rural family clans in three generations (97 people overall) in HesarKhorvan village of Qazvin were studied. While changes in governmental policies and practices in rural context have crucially contributed to development of new values and reproductive practices, but the intended consequences have not followed. Regardless of the official intentions, the families adapted different familial values and made diverse decisions regarding their life in different period of their life history. Despite the official ideological and religious narratives of the government, the transition from traditional and communal values to the primacy of personal and sexual satisfaction in marriage in the third generation was quite evident. Macro socio-structural transformations including modernization, globalization and medicalization effects have surpassed all contesting ideological, religious and traditional values and practices in everyday life.

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## ANALYSIS

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### **The effect of care plan based on Roy Adaptation Model on the spiritual well-being of women with breast cancer**

Masoumeh Otaghi, Bahareh Nazarpour, Hamid Taghinegad, Ali Khorshidi

Roy Adaptation Model is one of the nursing theories applied in the adaptation of patients suffering from chronic diseases. Breast cancer is the most prevalent kind of cancer among women in Iran. The present study aims at investigating the effect of care plan based on Roy Adaptation Model on the spiritual well-being of women with breast cancer. The present study is a semi-experimental study conducted on 80 breast cancer female patients referring to Ahvaz Naft Hospital in 2017. The samples were randomly divided into two 40-patient groups; experimental group and control group. Data collection was conducted in two groups by using demographic information questionnaire, Roy Adaptation Model's recognition and assessment form, and Spiritual Well-being Scale (SWBS) developed by Paloutzian and Ellison. Data analysis was conducted in SPSS-20 by using t-test, Mann-Whitney U test, and Chi-squared test. Before conducting the intervention, there was no significant difference between two groups (experimental and control) in terms of the mean of spiritual well-being scores. However, the post-intervention spiritual well-being score of the experimental group ( $99.99 \pm 4.93$ ) increased significantly in comparison to that of the pre-intervention ( $73.37 \pm 4.11$ ) ( $P=0.001$ ). Moreover, the post-intervention spiritual well-being score of the control group ( $72.02 \pm 3.58$ ) decreased in comparison to that of the pre-intervention ( $73.10 \pm 4.25$ ). However, this decrease was not statistically significant. The findings of the present study indicated the effectiveness of Roy Adaptation Model on the spiritual well-being of women with breast cancer. This model can be used as a comprehensive guideline for promoting the status of spiritual well-being of women with breast cancer. It is recommended to investigate the effect of Roy Adaptation Model on individuals suffering from other chronic diseases.

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### **Postoperative analgesic effect of TAP (transabdominal plane) block implementation in open appendectomies**

Zakiye Likoglu, Fatih Dogu Geyik, Yucel Yuce, Banu Cevik

Inadequate pain treatment after surgery is an important factor that negatively affects the healing of the patient. Transversus abdominis plane (TAP) block is used to provide postoperative analgesia. Usq-based TAP block application is widely used. *Methods*: 60 patients, aged between 18-65 years with ASA I-II with emergency appendectomy plan were included. At the end of the surgery, Group I received 20 mL of 0.5% bupivacaine during TAP block. Group II received 10 mL of lidocaine and 10 mL of 0.5% bupivacaine for TAP block. Group III did not undergo TAP block. Visual analog scale (VAS), and additional analgesic dose and their satisfaction were evaluated postoperatively. *Results*: In Group I and Group II, VAS scores were found to be lower than in Group III. The number of additional analgesia performed in Group III was greater when compared with Group I and Group II. Patient satisfaction rates in Group III were statistically lower than the rates in Group I and II. *Conclusion*: In our study TAP block application reduced VAS scores, provided an effective postoperative analgesia, reduced need for additional analgesia, no additional complications, and greater patient satisfaction. TAP block may be an alternative to postoperative pain control in lower abdominal surgeons such as appendectomy.

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## RESEARCH

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### **Preventive efficacy evaluation of *Urtica dioica* on in vitro fertilization and embryo development in exposed mice**

Ardehsir Moayeri, Reza Ahmadi, Ayoob Rostamzadeh, Najmeh Salehi, Mohsen Mohammadi, Daryoush Fatehi

Nowadays impact of cell-phone RF on human health is subject of many researches. Antioxidant properties of hydroalcoholic extract of *Urtica dioica* (UD) have been proven to eliminate free radicals and oxidative stress. Purpose of this study was to assess the impacts of cell-phone RF on in-vitro fertility (IVF) rate and role of the UD extract against induced the RF damages. A total number of 54 adult, male NMRI mice were randomly divided into six equal groups randomly; control group, RF-irradiation alone (2hrs a day for 28days), those received only 50mg/kg UD, 50mg/kg UD plus RF-irradiation, only 100mg/kg UD, and 100mg/kg UD plus RF-irradiation. The UD was intraperitoneally injected 1hr before RF-irradiation. IVF performed 1day after the last RF-irradiation. Chromatin integrity in sperm DNA evaluated by acridine orange staining. Finally, frequency and morphology of the embryos were assessed. ANOVA and Tukey's tests applied for statistical analysis. RF-irradiation alone significantly decreased frequency of two-cell embryos ( $p=0.000$ ) and grade-A embryos ( $p=0.014$ ); while it significantly increased the dead embryos ( $p=0.001$ ) and grade-B ( $p=0.033$ ), grade-C ( $p=0.017$ ) and grade-D embryos ( $p=0.008$ ). RF-irradiation alone led to significant genetically damages in DNA chromatin ( $p=0.000$ ). Injection of 100mg/kg UD increased significantly frequency of the two-cell embryos ( $p=0.01$ ) and grade-A embryos ( $p=0.018$ ); where it significantly reduced the dead embryos ( $p=0.026$ ), grade-C ( $p=0.026$ ) and grade-D embryos ( $p=0.038$ ). Cell-phone RF can change number of two-cell mouse embryo as well as embryo's morphology and induces molecular damages in the DNA of the sperm. Moreover, UD extract plays a protective role against RF induced damages.

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