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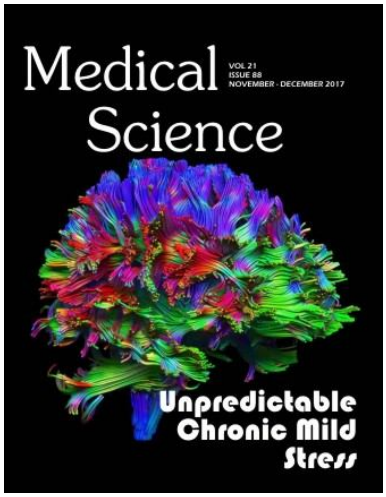
Medical Science

About the Cover



Many preclinical trails on laboratory rats have well demonstrated the effects of unpredictable stressors that they produce behavioral and neurochemical alterations. Chronic stress produces the alteration in serotonergic transmission it has potential to increase the responsiveness to drug challenges and novel stressors to behavioral and neurochemical alteration. The present study was performed to determine the antidepressant potential of methylphenidate in animal model of chronic mild stress. The experimental case-control study was conducted in April 2015 at the Department of Biochemistry, University of Karachi and comprised male rats. Average weight rats were randomly divided into two equal groups, animal of stressed group were exposed to CMS. Animals of unstressed and stressed group were administrated with methylphenidate at dose 1.0 mg/kg/day for 14 days 1 hour before the animals exposed to CMS. Behavioral anxiolytic assessments were done by using light/dark transition and elevated plus maze apparatus models. CMS exposed animals showed behavioral deficits, which recovered by the repeated administration of methylphenidate treatment. Animals showed anxiogenic deficit on repeatedly exposure to stress as compared to unstressed animals which were attenuated by repeated administration of methylphenidate. It has concluded from present study that methylphenidate possesses anti-depressive effects and it can potentially suppress the behavioral deficits induced by chronic mild stress. Chronic mild stress showed the behavioral disturbance in laboratory rats which can be successfully decreased by the repeated treatment of methylphenidate (Ref: Muhammad Farhan, Safia Habib, Fatima Riaz, Sana Wali. Inhibition of unpredictable chronic mild stress induced anxiogenic condition by the repeated administration of methylphenidate in male rats. *Medical Science*, 2017, 21(88), 280-286).

PERSPECTIVE

Particulate matter air pollution and cardiovascular disease

Neil K. Agarwal, Prerna Sharma, Shashi K. Agarwal

Particulate matter air pollution, both indoor and outdoor, although traditionally causally associated with pulmonary disease, is now being increasingly implicated in cardiovascular disease and mortality. The rapid growth of many developing countries, with an explosive influx of motor vehicles, has greatly increased the ambient air pollution in several well populated cities, Beijing and Delhi are glaring examples. A review of published data on the associated increase in particulate matter air pollution, indicates that this 'developmental growth' is directly related to a steady increase in diseases and death. Indoor air pollution also continues to be a growing silent killer. Environmental particulate matter pollution has thus become a significant preventable health hazard. A major step towards its prevention is increased awareness, and this brief review is aimed at highlighting the deleterious effects of particulate air pollution, and its dismal effects, especially on the cardiovascular system.

Medical Science, 2017, 21(88), 270-279

RESEARCH

Inhibition of unpredictable chronic mild stress induced anxiogenic condition by the repeated administration of methylphenidate in male rats

Muhammad Farhan, Safia Habib, Fatima Riaz, Sana Wali

Many preclinical trails on laboratory rats have well demonstrated the effects of unpredictable stressors that they produce behavioral and neurochemical alterations. Chronic stress produces the alteration in serotonergic transmission it has potential to increase the responsiveness to drug challenges and novel stressors to behavioral and neurochemical alteration. The present study was performed to determine the antidepressant potential of methylphenidate in animal model of chronic mild stress. The experimental case-control study was conducted in April 2015 at the Department of Biochemistry, University of Karachi and comprised male rats. Average weight rats were randomly divided into two equal groups, animal of stressed group were exposed to CMS. Animals of unstressed and stressed group were administrated with methylphenidate at dose 1.0 mg/kg/day for 14 days 1 hour before the animals exposed to CMS. Behavioral anxiolytic assessments were done by using light/dark transition and elevated plus maze apparatus models. CMS exposed animals showed behavioral deficits, which recovered by the repeated administration of methylphenidate treatment. Animals showed anxiogenic deficit on repeatedly exposure to stress as compared to unstressed animals which were attenuated by repeated administration of methylphenidate. It has concluded from present study that methylphenidate possesses anti-depressive effects and it can potentially suppress the behavioral deficits induced by chronic mild stress. Chronic mild stress showed the behavioral disturbance in laboratory rats which can be successfully decreased by the repeated treatment of methylphenidate.

Medical Science, 2017, 21(88), 280-286

CASE STUDY

Broken synthetic tracheostomy tubes presenting as a foreign body in airways – Rare Case Series & Review of the literature

Sahoo Arpita Krishna, Ray Sundar Chinmaya, Priyadarshini Raisa

Tracheo-bronchial foreign body aspiration is a life threatening condition that can be seen in all age groups. Tracheostomy is a common lifesaving airway procedure. This procedure is although safe, early and late complications are known to occur. Broken tracheostomy tube and the resulting airway complications are rare in ENT practice and it requires urgent diagnosis and prompt intervention. In Literature, various cases of broken metallic tracheostomy tubes in airway had been reported in many literatures. We report two cases of broken synthetic (PVC) tracheostomy tubes which were accidentally lodged in the airway. Although it is sometimes asymptomatic, but they present with cough, dyspnea, hemoptysis and stridor. Rigid bronchoscopy was preferred over flexible bronchoscopy to remove the foreign bodies under general anaesthesia.

Medical Science, 2017, 21(88), 287-293

ANALYSIS

Dietary intake of female patients with renal failure in Al-Hassa Province, East of Kingdom of Saudi Arabia

Najat Ali Al-Abbad

The aim of this study was to assess the dietary intake of female patients with renal failure in Al-Hassa Province, east of Saudi Arabia, and to study the effect of some variables on dietary intake of the patients. The study included 85 volunteers female with renal failure, from three Hemodialysis (HD) centers during seven- months period study from May to November, 2013. The data was analyzed by SPSS, ver. 17 Program. The results showed that daily dietary intake of most nutrients were low specially energy (932.2±345.2kcal), protein (36±14.8g), fat (28.8±15.2g), calcium (290.8±206.7mg), phosphorus (558.3±301.8mg), vitamins A (252.6±188.7mg), C (19.5±22.9mg), B1 (0.6±1.0mg) B2 (0.7±0.6mg) respectively, and fiber (5.5±3.1g). Dietary intake of some nutrients were significantly affected by some variables (like age, educational level, nutritional knowledge, BMI, number of HD and

family income level), whereas some variables did not have an effect on dietary intake (like social status, Place of residence and onset of HD). The results also showed that the age of 76.5% of patients were ≥ 40 years , 32.9% were overweight and 35.3% obese, all of patients are sedentary and light active, 62.4% were illiterate and the level of nutritional knowledge of 30.6% of the patients were low. The onset of HD for 65% of female patients with renal failure was ≤ 3 years, and 91.8% of the patients undergoing HD three times weekly. Based on these results, the study recommends hospitals` administration to organize continuous classes in order to educate patients with chronic renal failure who need hemodialysis about correct nutrition, in addition periodic nutrition consultations with dietician and provision of a detailed diet plan for each patient is very helpful.

Medical Science, 2017, 21(88), 294-304

RESEARCH

The return of the bilateral neck exploration for primary Hyperparathyroidism

Beatriz de Rienzo-Madero, Gabriel Kraus-Fischer, Carlos Toledo-Toral, Daniel Kajomovitz-Bialostosky, Manuel Muñoz-Juarez, Eduardo Moreno-Paquentin, Enrique Luque de Leon, David Caba, Fernando Cordera, Rodrigo Arrangoiz

We recommend the use of a radio guided bilateral neck exploration with the evaluation of the functionality of the four parathyroid glands to determine which should be excised for the management of primary hyperparathyroidism (PHPT). We describe the feasibility and efficacy of this technique in our patients in a hospital in Mexico. A cohort of 36 consecutive patients with the diagnosis of PHPT who underwent surgical intervention where obtained from a prospectively maintained database. Patients were injected with 99m-Tc sestamibi one hour prior to surgery, an exploration of the four parathyroid glands was conducted through a 2.0cm incision and ex-vivo functionality of each gland was evaluated with removal of the hyperfunctioning gland or glands. Intraoperative PTHi was measured. Patients were followed-up at 1, 3, 8 weeks, and 1 year. One hundred percent of our patients had symptomatic PHPT. Fifty-three percent had a negative 99m-Tc sestamibi scan, and 44.4% had a single adenoma. After surgical intervention, 19.4% had a single adenoma, 36.1% a double adenoma, 33.3% a triple adenoma, and 11.1% hyperplasia. Adenomas had a 71% radioactivity over the basal count, and hyperplasic glands 20.89%. All patients had a decrease in biomarkers postoperatively. We had a failure rate of 5.5%. No patient presented significant complications. The radio guided bilateral neck exploration offers a similar cure rate to the traditional bilateral neck exploration and a greater cure rate than for unilateral parathyroidectomy, with a similar morbidity. We propose this as a safe and effective technique, and a feasible alternative in Mexico.

Medical Science, 2017, 21(88), 305-316

ANALYSIS

Phenotypic differentiation of class A and class B Carbapenemases in Enterobacteriaceae

Savitha Hiremath, Renushri BV, Nagaraj ER

Appropriate detection of Carbapenem Resistant Enterobacteriaceae (CRE) is vital for patient care in order to institute correct therapeutic options. Molecular techniques can easily differentiate classes but the need of the hour is a rapid practical phenotypic method which can differentiate KPCs and MBLs in Enterobacteriaceae. The present study detects and differentiates class A and B carbapenemases among Enterobacteriaceae by simple phenotypic methods that uses both inhibitors EDTA and Phenyl Boronic Acid. Among 38 CRE isolated from 447 strains of Enterobacteriaceae 14 showed class B (MBL) and none showed class A (KPC) carbapenemases phenotypically. 19 were positive for MBL genes and none for KPC genes by multiplex PCR. To conclude, this phenotypic method is very helpful to detect carbapenemase production and provides a simple algorithm for the differentiation of Class A carbapenemases and MBL enzymes in Enterobacteriaceae in routine clinical microbiological laboratories.

Medical Science, 2017, 21(88), 317-321

CASE REPORT

Monomorphic adenoma of base of tongue- a rare case report & review of literature

Sahoo Arpita Krishna, Ray Sundar Chinmaya, Dash Rajat, Sarangi Kaushik

Monomorphic adenoma is a rare benign salivary gland tumour of epithelial origin representing <2% of all tumours in general population and more than 80% of them arise in major salivary glands, mostly in the parotid gland and rarely in upper lip or buccal mucosa. Monomorphic adenomas are defined as epithelial benign tumours of the salivary glands, which are not pleomorphic adenomas. Due to prognostic implications, differential diagnosis (adenocarcinoma, adenoid cystic carcinoma, basaloid squamous cell carcinoma, mucocele, sebaceous cyst, lipoma, nasolabial cyst, etc.,) has to be considered before confirming the diagnosis. A rare case of a monomorphic adenoma of the minor salivary glands is situated at the base of the tongue in a 49-year-old male is reported. A review of the literature of minor salivary gland tumors and their location in the oral cavity has been discussed. Use of coblation technique made the surgery easier with minimal blood loss and minimal post-operative morbidity.

Medical Science, 2017, 21(88), 322-328

Histological and electron microscopic examination of the effect of Dexketoprofen Trometamol on liver in rats

Arzu Esen Tekeli, Hatice Yağmurdur, Erçin Öngen, Ahmet Tekeli, Gülnur Take, Deniz Erdoğan, Beyazit Dikmen

The current study was performed for histological and electron microscopic examination of the effects of different doses of dexketoprofen trometamol on liver in rats. Shame group consisted of rats administered 1 ml of 0.9% NaCl twice a day via intraperitoneal route, 8 mg/kg/day was used in Dexketoprofen Trometamol low-dose group, and 16 mg/kg/day was used in Dexketoprofen Trometamol high-dose group. 30 healthy Wistar albino type male rats were used in the study as animal materials. The presence of TUNEL positive cells was increased with the increasing dose level of Dexketoprofen Trometamol and TUNEL positive hepatocytes distributed all over the tissue. Diffuse degeneration was determined in the liver sections of the group administered high-dose. Necrotic areas became more apparent particularly in regions close to the central vein. PCNA involvement was detected to be considerably increased compared to the shame and low-dose groups. Electron microscopic image of liver in the group administered high-dose drug showed that all hepatocytes present with highly active cell structure. Hepatocyte mitochondria were observed to be highly developed and to grow large and fuse from place to place. Granulated and smooth endoplasmic reticulum tubulus and cisternae displayed a highly-dilated appearance. Bile canaliculi were distinguished as dilated and its lumen was covered with microvilli. There were many vacuolar formation in addition to lipid droplets in the cytoplasms of ito cells. Dexketroprofen Trometamol drug administration was determined to increase activation particularly in parenchymal cells depending on dose and cause degeneration in liver tissue with heavy activity.

Medical Science, 2017, 21(88), 329-335

Does emotional intelligence affect peer support of nursing students?

Cinar-Pakyuz S, Dedeli-Caydam O, Sevgi-Dogan E, Deniz D

This study was conducted to assess the relationship between peer support and emotional intelligence as descriptive and correlation. Sample of the study consisted of 417 nursing students available and enrolled to Manisa Celal Bayar University Faculty of Health in academic year 2014-2015 and accepted to participate in the research. Data was collected using “Peer Support Scale” “Schutte Emotional Intelligence Scale” and “Student Identification Form” containing students’ socio-demographical characteristics. The average age of the sample was 20.7 ± 1.4 (18-29) years and most of them were female (73.4%) and they lived in student residence. It was found that mean score of Revised Schutte Emotional Intelligence Scale was 145.1 ± 16.4 (98-200), and mean score of Peer Support Scale was 37.6 ± 9.5. There was no significant correlation between Schutte Emotional Intelligence Scale and Peer Support Scale scores ($p>0.05$). It shown that female’ Schutte Emotional Intelligence Scale scores, and optimism/mood regulation, appraisal of emotions and the utilizations of emotions scores were higher than male, however, male’ Peer Support Scale scores, and academic assistance and emotional assistance scores were higher than female. We can recommend that providing of appropriate academic assistance to the first class students and more supporting of female students in order to take academic and emotional assistance.

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