ABSTRACT

Can L-carnitine attenuate the hepatotoxic effect of valproic acid in adult male albino rat?

Ayman Abo Elenein Rizk, Ahmed Galal Motawea, Shereen Mohamed Abd Elfattah, Sherif Mohamed Sabry Hassan (Poster)

Background: Valproic acid (VPA) is a commonly used antiepileptic drug for the treatment of different types of seizures. It causes liver toxicity which is strongly related to oxidative stress.
Aim of work: the present study was designed to investigate the role of L-carnitine in attenuating VPA-hepatotoxicity in adult male albino rat.
Material and methods: the present study was carried out using forty adult male albino divided equally in: group I: (control group), group II (sham control), group III (VPA treated): treated with VPA (500 mg/kg BW) daily via intra peritoneal injection for 7 consecutive days group IV (L-carnitine and VPA treated): received L-carnitine (200 mg/kg/day) daily orally via gastric gavage (given 2 hours preceding verapamil injection) for 7 consecutive days. At the end of the experiment, blood samples were aspirated from retro-orbital venous plexus of each rat for biochemical analysis; estimation of the liver enzymes. The rats were sacrificed and the liver of each rat was removed. Liver sections were subjected to different studies; histological, histochemical, immune-histochemical and statistical.
Results: Group III showed obvious degeneration of the hepatocytes, dilatation and engorgement of the central vein and hepatic sinusoids, marked inflammatory cellular infiltration. Weak PAS reaction and strong Caspase 3 immune-expression and marked increase in the liver enzymes were noticed. L-carnitine administration in Group IV showed improvement and preservation of the hepatic architecture and remarkable improvement in liver functions. Strong positive PAS reaction and weak Caspase 3 immune-expression were noticed.
Conclusion: L-carnitine could attenuate the hepatotoxic effect of valproic acid in adult male albino rat.

Therapeutic Role of Mesenchymal Stem Cells in Chronic Nicotine-Induced Histopathological Alterations in Prostate of Albino Rats: Histological, Immunohistochemical, and Fluorescent Study

Abir O. El Sadik (Poster)

Introduction: Nicotine have been shown to be a reproductive toxicant in animals and is associated with high risk of cancer. Nicotine induces morphological alterations in the prostatic epithelium affecting the function of the gland.
Aim of work: The present work was designed to evaluate the possible modulating role of bone marrow derived mesenchymal stem cells (MSCs) in tissue repair or regeneration of the nicotine induced prostatic toxicity.
Materials and Methods: Thirty-six adult male Sprague Dawley albino rats with an average weight of 200-250g were divided into three equal groups (twelve rats in each group): group 1 (control group), group 2 (Nicotine treated group) given a single daily subcutaneous dose of 0.125 mg nicotine/kg body weight for ninety days, group 3 (Nicotine and MSCs treated group) given a single daily subcutaneous dose of 0.125 mg nicotine/kg body weight for ninety days and one systemic injection (through the caudal vein) of MSCs (1 x 106) diluted in 0.5 ml of PBS two weeks before the end of the experiment. Sections of the prostate were examined for histological, immunohistochemical and fluorescent studies.
Results: Marked stromal degeneration was detected in the nicotine treated group in the form of dilated acini, reduction in the height of epithelial lining and flattening of columnar cells with poorly infolded mucosa, in addition to prostatic intraepithelial neoplasia. Disorganization of organelles with nuclear degeneration was observed. Significant increase in collagen fibers, positive immune reaction to caspase-3 denoting cellular apoptosis and negative reaction of nuclear proliferation marker (PCNA). MSCs treated group revealed the presence of PKH26 labeled stem cells within the epithelial layers of the prostate denoting their homing to the site of damage. They showed nearly normal light and electron microscopical features of all layers. Minimal caspase-3 reaction and positive PCNA immune reaction denoting nuclear regeneration.
Conclusion: MSCs ameliorated nicotine-induced prostatic toxicity and could preserve prostatic structure and function.

The Effect of Depot-Medroxyprogesterone Acetate on the Ovary of Adult Mice and the Possible Role of Vitamins C and E: Morphometric and Immunohistochemical Studies

Amira Gaber, Maha Safwat, Hanan Yehia, Nehal Mohammed, Nesreen Mustafa (Poster)

Background: Depot-Medroxyprogesterone Acetate (DMPA) Is A Commonly Used Long-Acting Injectable Form Of Progestin. Water-Soluble (Vitamin C) And Lipid-Soluble Antioxidants (Vitamin E) Are Natural Antioxidants Which Inhibit The Generation Of Peroxide Radicals. Caspase-3 Is A Key Protease Activated During The Early Stages Of Apoptosis And Synthesized As An Inactive Pro-Enzyme That Is Processed In Cells Undergoing Apoptosis. Anti-Caspase-3 Is Reported To Recognize The Active Caspase-3 In Human And Mouse Cells.
Aim Of The Work: Is To Study The Effect Of Depot-Medroxyprogesterone Acetate (DMPA)

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On Ovaries Of Adult Mice And The Possible Ameliorating Effect Of Combined Vitamins C And E.
Materials And Methods: Thirty-Five Female Mice Were Divided Into The Following Groups: Control (N = 15 Mice) Subdivided Into Three Groups: Untreated, Vehicle (Sesame Oil, Distilled Water And Saline) And Treated (Vitamin C 200 Mg/Kg/Day And Vitamin E 160 Mg/Kg/Day Orally); DMPA (N = 10 Mice) At Dose 0.5 Mg/ Mice/Week I.M And DMPA Plus Combined Vitamins C & E (N = 10 Mice). The Ovaries Were Dissected, Weighed And Sectioned. Some Sections Were Stained With Hematoxylin And Eosin And Others Were Immunohistochemically Studied Using A Labeled Streptavidin-Biotin Immunoenzymatic Antigen Detection System (Anti-Caspase3).
Results: The Ovarian Weight Was Significantly Lower In DMPA Group Than The Treated And The DMPA With Vitamins C & E Groups ($P < 0.05$) But Was Insignificantly Lower Than The Untreated And Vehicle Groups ($P > 0.05$). The Number And Size Of The Different Follicles Within The Ovary Was Decreased In The DMPA Group But This Ovarian Stress Was Much Reduced By Vitamins C & E.
Conclusion: Depot Medroxy-Progesterone Acetate Is Proved To Have An Oxidative Stressful Effect On Ovaries But This Harmful Effect Can Be Ameliorated To A Great Extent By Natural Antioxidants As Vitamins C & E.

The Protective Effect of L- Carnitine and Vitamin E on Cyclophosphamide Induced Toxicity on the Testis of Adult Male Albino Rats

Mady BA, Zaky MG, Elshinety RM, Zahran NM, ElMagd AA. (Presentation)

Background: Cyclophosphamide (CP) is an extensively used chemotherapeutic agent, known to cause male reproductive toxicity. Some antioxidant agents were found to be protective against CP toxicity e.g L-Carnitin and Vitamin E. L-carnitine (LC) is a widely distributed natural nutrient. It plays a central role in cellular energetic metabolism and is commonly used in treatment of male infertility. Vitamin E (Vit E) is a fat-soluble vitamin that acts as an antioxidant. It acts as an essential nutrient for reproduction as prevention of sperm loss.
Aim of the work: This study is designed to assess the possible protective effects of LC and Vit E on the testes of CP treated rats concerning gross anatomy and histology.
Material and Methods: 36 Male adult albino rats were categorized into three groups: Control group (I) was further subdivided into gp Ia which received daily intra peritoneal injection of saline for a week, gp Ib which received oral LC (2.1 mg/kg) daily for two weeks, and gp Ic which received oral Vit E (36 mg/kg) daily for two weeks. Experimental group (II) received daily intraperitoneal CP (20 mg / kg) for a week. Protected group (III) was further subdivided into IIIa and IIIb that received oral LC (2.1 mg/kg) and Vit E (36 mg/kg) respectively for a week and continued for another week with intraperitoneal injection of CP (20 mg / kg). After two weeks, the rats were sacrificed and the testes were dissected, grossly examined and weighed. The testes were prepared for histological sections and stained with Toluidine Blue. Histological examination of semi-thin sections was done using light microscope.
Results: Regarding Gross anatomy. GP II, experimental group with CP, showed a significant reduction in the mean value of the testicular weight in comparison with the control group. As for GP IIIa and IIIB, the protected groups with LC and Vit E respectively, the mean value of the testicular weight was non- significantly increased in comparison with GP II. Light microscopic changes in GP II revealed distorted seminiferous tubules and disruption of their basement membranes. Most of the seminiferous tubules showed intracellular vacuolization and disorganization and sloughing of the spermatogonial cells. Decreased number of sperms and multiple residual bodies were also encountered. Histological examination of GP IIIa and GP IIIB, the protected group, showed improvement except for minimal intracellular vacuolizations. But results of Gp IIIa were better than that of Gp IIIb.
Conclusion: This study showed that both LC and Vit E could be used as protective agents against CP-induced reproductive toxicity, but the protective effect of LC was more than Vit E.

Effect of Interferon alpha (IFN-α) on the optic nerve of adult male albino rat and the possible protective role of omega 3 administration.

Basma Emad Aboulhoda (Presentation)

Introduction: Interferon therapy is the treatment backbone for chronic hepatitis C virus infection. A novel interferon; IFN-α has recently been introduced. It is a complex glycoprotein with anti-proliferative, antiviral, and immunomodulatory activity. It has a covalently attached branched chain glycol moiety, which improves drug absorption and prolongs its half-life allowing for less frequent injections and improved patient compliance. However, optic neuropathy secondary to IFN-α has become an emerging concern rising out the need to introduce new drugs to reduce such an adverse effect. Thus, the current study aimed at elucidating the optic nerve changes occurring after IFN-α administration and the possible protective role of omega3 supplementation.
Material and Methods: Forty adult male albino rats were divided equally into four groups. Group I served as the control group. Group II included rats that received omega-3 at 40 mg/kg/day using gasrtic gavage. Group III included rats that received IFN-α alone (100000 IU/kg/ three times/

week, intraperitoneally) which is considered the normal treatment dose. Group IV included rats that received both IFN-α and omega 3. After 8 weeks, the optic nerves were extirpated and processed for light microscopic and ultrastructural examination, immunohistochemical evaluation of GFAP and histomorphometric assessment of myelin thickness, number of axons and distribution of axon diameter.
Results: IFN-α resulted in appearance of thin, degenerated axons, watery and dark degeneration in myelin sheaths, axolemmal detachment, formation of multi- lamellated myelin whorled masses, lamellar separation of myelin sheath, mitochondrial swelling, increased vacuolization in the cytoplasm of oligodendrocytes and astrocytes and abnormal accumulation of cellular debris. Area percent of GFAP was significantly increased while myelin thickness and number of axons were significantly decreased. Distribution of axon diameter also displayed obvious changes. Most of these deleterious effects were prevented by co-administration of Omega3.
Conclusion: This study demonstrated that IFN-α induced several structural alterations in the optic nerve, most of which were prevented by omega3.

Variations versus Similarities in the Cerebellar Structure of Different Animals: A Comparative Anatomical Study (Poster)

Mohamed N.M. Saleh, Ayman S. Amer, Manal M.S. El-Meligy, and Doaa H.A. Hamed

Background: Vertebrates have different movements varying according to their habits and anatomic structures. The cerebellum is responsible for coordination of movements, regulation of muscle tone and maintains posture.
Aim of the work: This comparative study aims to evaluate morphology of anterior cerebellar lobe's lobules (lobule III for hind limb, and lobules IV+V for forelimb movements) among different vertebrates, with emphasis on cerebellar structure/ function relationship.
Material and Methods: Different adult male animals were used. From quadripedal animals: rat, cat, rabbit, cow were selected. From bipedal: human. From avian: pigeon, bat, duck. From reptiles: snake. The cerebella from all animals were studied for gross morphology, microscopic structure, and morphometric analysis.
Results: Snake cerebellum didn't show foliations. Pigeon, duck and bat had large foliated vermis with rudimentary cerebellar hemispheres. Rat, cat, rabbit and cow showed large-sized complex foliations of both cerebellar hemispheres and vermis. The human had massively large cerebellar hemispheres and small vermis. Moreover, the pigeon, duck and bat showed markedly small lobule III but large lobules IV+V. Cat had smaller lobule III than lobules IV+V. In contrast, the rat and rabbit had larger lobule III than lobules IV+V. In the cow and human, lobule III was very large and appeared equal to the size of lobules IV+V. Histologically, there were similarities in the order of cerebellar layers of various animals. But, there were marked differences in the layer thickness and number of Purkinje cells among studied animals. There was significant difference between lobule III and lobules IV+V in Purkinje cell number and cortical layer thickness following animals' behavior. In animals using hind limbs more than forelimbs the mean numbers of those measured data showed significant increase in lobule III than IV+V, and vice versa.
Conclusion: Variations in relative sizes and morphology of cerebella are related to behavioral differences among animals.

Histological study of the effect of iron oxide nanoparticles on thyroid follicular cells of adult male albino rats and the possible protective role of beta-carotene

Inaam Kelada, Shefaa El-Sawy, Hala Abd El-Moaty,. Eman Magdy (Poster)

Background: Nanotechnology is one of the fastest growing technologies increasing their worldwide distribution and enhancing the likelihood of environmental and human exposure. Iron oxide nanoparticles (IONPs) have widespread applications in many fields including food industry, electronic field, environmental remediation and nanomedicine. Humans exposure to IONPs are getting more day-by-day through various routes, and their potential toxicity effects should be studied.
Aim of the work: This study was conducted to investigate the effect of IONPs on thyroid follicular cells of adult male albino rats and the possible protective role of beta carotene using hormonal assay, histological and morphometric studies.
Material and methods: Characterization of IONPs was done by using Transmission electron microscopy, Nano Zeta sizer particle analyzer and X-ray diffraction. This study included 40 adult male albino rats and divided randomly into 4 equal groups. Group I: were used as a control group subdivided randomly into 2 subgroups; subgroup IA: received distilled water and Subgroup IB: received 2 ml corn oil/day. Group II: received 40 mg/kg/day beta-carotene orally dissolved in 2 ml corn oil. Group III: received 300 mg/kg/day IONPs orally dissolved in one ml of distilled water. Group IV: received oral IONPs as in group III concomitantly with beta-carotene as in group II. After 15 days, blood samples of all rats were taken for hormonal assay. Thereafter, all rats were sacrificed and specimens of thyroid glands were dissected and processed for histological and morphometric studies.
Results: Hormonal assay showed only significant decrease in serum T4 and significant increase in TSH in group III compared to control group. Group I (control) and group II (beta-carotene) revealed almost the normal histological structure of thyroid follicles. In group III, histological

sections of thyroid gland revealed variable degree of thyroid follicle affection as disrupted follicles, desquamated cells in their lumen and vacuolated cytoplasm of follicular cells. Foamy colloid filled thyroid follicles were also seen. However, in group IV, histological sections of thyroid gland revealed a preserved structure of the thyroid follicles, which appeared with regular outlines and intact basal lamina. Follicular cells appeared cuboidal with central rounded nuclei while some scattered follicular cells exhibited vacuolated cytoplasm. Their lumina filled with moderately homogenous colloid. Morphometric study demonstrated only significant increase in follicular epithelial height and significant decrease in follicle's diameter in group III compared to control group.
Conclusion: Our study concluded that IONPs can cause harmful effects on thyroid follicles which could be evidently ameliorated with concomitant administration of Beta-carotene.

The Prenatal Toxic Effect of Methyl mercury on the Development of the Fetuses of Mice and the Protective Role of Folic Acid

Abeer Gaber Ahmed, Miriam Ramzy Riad
(Poster)

Background: Mercury occurs naturally in the environment and exists in several forms; everyone is exposed to a very low level of mercury in air, water, and food. Methyl mercury is the most common organic mercury compound that microorganisms and natural processes generate from other forms. Prenatal organ development is known to be sensitive to many environmental conditions that are why the effect of methyl mercury on developing brain liver, and kidney were tested. An adequate supply of dietary folate in pregnancy is essential for normal embryonic development, including that of the nervous system, and its supplementation lowers the incidence of congenital defects.
The aim of the work: to detect the teratogenicity of methyl mercury in mice fetuses. Also, the protective effects of folic acid as antioxidants against methyl mercury induced developmental abnormalities were examined.
Material and Methods: 60 Healthy pregnant females' mice 6- 8 weeks of age, weighing (25-35 g) were subjected to this study. They were caged separately and allocated randomly into equal three groups of 20 mice each. The first was the control group; each pregnant mouse received 1ml of distilled water/day orally. The second group received 10 mg/ kg body weight /d mercury dissolved in distilled water by orogastric gavage without folic acid. The third group was treated with folic acid dissolved in distilled water (100 mm/day) by orogastric gavage in addition to mercury. The mice in the three groups were treated from the 6th to 15th day of gestation On the 18th day of gestation, all animals were killed by cervical dislocation and fetuses were delivered by caesarean section. Each fetus was euthanized by decapitation. The brain was removed from the skull. Chest and abdominal viscera were exposed by midline abdominal incision. Kidney and liver were removed. The fetal tissues specimens were fixed in 10% formal saline and processed to get 5 µm thick paraffin sections. These sections were stained with Haematoxylin & Eosin stain for routine histological examination .The sections were examined under a light microscope.
Results: I- Fetal observation. The fetuses after delivery showed the following: normal body size in control group, a slight reduction of body size in group II and severe reduction of body size in group III. II-Histological Findings. 1-Liver: The liver in group I showed the classical hepatic architecture, the hepatocytes arranged in cords radiating from the central vein and separated by blood sinusoids. Hepatocytes were polyhedral in shape with slightly vacuolated granular acidophilic cytoplasm and vesicular nuclei and blood sinusoids separating the hepatic cords are seen and normal portal tract. The liver tissue of group II showed marked affection of the hepatic lobules with disorganization of hepatic architecture. Congested, dilated central vein and blood sinusoids were seen. Hepatocytes appeared swollen and vacuolated. Some cells showed dark eccentric nuclei, others showed pyknotic nuclei and areas of hydropic degeneration with marked inflammatory cell infiltration. The liver tissue of group III showed mild affection of the hepatic lobule with slightly preserved hepatic architecture. Blood sinusoids in between them were dilated containing many Kupffer cells. The Central vein was slightly congested and hepatocytes showed an area of hyper eosinophilia with cellular infiltration. The portal tract was normal. 2-Kidney: The kidney tissue of the control group I showed normal cortex with multiple glomeruli, normal glomerular capsular space, normal Bowman's capsule and cells in the tubules. The kidney of group II showed small and shrinking vascular glomeruli, widening of the glomerular space with a destruction of epithelial lining cells of the Bowman's capsule and epithelial lining cells of the tubules. The kidney of group III showed slightly enlarged vascular glomeruli, some decrease of glomerular spaces, with flat epithelium lining of Bowman's capsule, slightly smaller glomeruli, and some degeneration of some epithelial lining of tubules. 3-Brain: The brain of control group I showed normal frontal cortex with normal architecture and distribution of neurons, nuclei and blood vessels. The brain of group II showed multiple dark pyknotic nuclei of neurons and dilated blood vessels. The brain of group III showed some dark pyknotic nuclei of neurons and some dilated blood vessels.
Conclusion: Over viewing the present study results one can conclude that exposure to methyl mercury induces growth retardation and histo pathological changes of the brain, liver .and

kidney in the fetuses of mice due to developmental toxicity. Folic acid caused significant regression in the anomalies mainly in the liver and kidney. Methyl mercury use during pregnancy should be restricted as much as possible.

Anatomical Study of the Ophthalmic Artery

Amira Hamed Mohamed El-Trawy, Abeer Gaber Ahmad, Wafaa Abd El Rahman Ahmad, Mohamed El Nakidy (Poster)

Background: Therapeutic embolization of vascular and neoplastic processes, involving the ophthalmic artery is common, with recent advances in endovascular procedures. Detailed knowledge of the microsurgical anatomy of the OA is critical to performing safe and effective endovascular procedures.In addition, the common presence of anastomotic channels between the ophthalmic artery and the middle meningeal artery can be a source of disabling complications during embolization of pathologies supplied by the middle meningeal artery.

The aim of the work: The aim of this work was to study the origin, course, branches, and diameter of the ophthalmic artery with its possible variations and to study the possible sites of anastomosis between its branches and these of the external carotid artery in order to clarify the anatomical basis for possible clinical applications.

Material & Methods: This study was carried out on twenty-five cadaveric formalized head and neck specimens. These were obtained from the Dissecting Room of the Anatomy Department of the Faculty of Medicine, Alexandria University. Ten of these were injected with red latex.

Results: The present study revealed that Ophthalmic artery was originated from the supra clinoid segment of the internal carotid artery in all specimens. In 60% of the specimens, the ophthalmic artery originated from the medial third of the superior wall of the supra clinoid segment of internal carotid artery, from the central third in 32% and from the lateral third in 8% of the specimens. Its origin was extradural in 56% of the specimens and from the intradural portion of the internal carotid artery in 44%. Regarding the relationship of origin of the ophthalmic artery with the optic nerve, it was inferior medial to the optic nerve in 68% of the specimens, inferior lateral to the optic nerve in 16% of the specimens and inferior central to the nerve 16% of the specimens. In the optic canal, the ophthalmic artery was lateral and inferior to the optic nerve in 88% of the specimens. In 12% of the specimens it was medial and inferior to the optic nerve, and in all the specimens it was intradural. In about 88% of the specimens, the ophthalmic artery had an exit from the optic canal lateral to the optic nerve and in 12% of the specimens the ophthalmic artery had an exit at the medial side of the optic nerve. The diameter of the ophthalmic artery at its origin was 1.7 ± 0.6, and its diameter where it crossed the optic nerve was 1.9 ± 0.6mm. The length of its intracranial segment was 3.9 ± 2.4 mm and the length of its intra canalicular segment of the ophthalmic artery was 8.2±1.3 mm. Central retinal artery arose from the ophthalmic artery as the first branch. The length of the central retinal artery was 5.2 ± 1.6 mm. It arose at the inferior aspect of the optic nerve. Its diameter at the origin was 0.2± 0.1 mm. The lacrimal artery has its course with the lacrimal nerve superior medial to the lateral rectus to reach the lacrimal gland. The mean diameter of the lacrimal artery was 0.5 ± 0.2 mm. In 23 specimens (92%) the lacrimal artery arose as a separate branch from the main ophthalmic artery trunk. In the remaining two specimens (8%) the lacrimal artery arose from the middle meningeal artery. The anterior ethmoidal artery was detected in all specimens. Its diameter was 0.6 ± 0.3. The posterior ethmoidal artery was an inconstant branch of the ophthalmic artery and was detected in 52% of the specimens. Its diameter was 0.4 ± 0.2mm. Supraorbital artery originated from the ophthalmic artery in the second or third segment. It had an exit from the orbit through the supraorbital foramen or notch. Anastomosis between the supraorbital artery and the superficial temporal artery was detected. The average distance between the exit of supraorbital artery and midline was found to be 26.5 ± 2.6 mm. The terminal branches of the ophthalmic artery, the supra trochlear and dorsal nasal arteries. The Supra trochlear artery left the orbit from the medial portion of the supra trochlear ridge. It exhibited a more superficial course and a larger diameter than the supraorbital artery. The average distance between the exit of the supra trochlear artery and the midline was found 16.4 ± 1.7 mm. The dorsal nasal artery pierced the orbital septum above the medial palpebral ligament, coursed on the root of the nose in the opposite direction to the supratrochlear artery and anastomosed with the angular artery (terminal branch of facial artery) at the dorsum of the nose.The diameter of the medial palpebral artery was found 1.2 ± 0.3 mm. The medial palpebral arteries in the medial part of the eyelids originated from the ophthalmic artery just before it gave its two terminal branches.

Conclusion: There are significant variations in the ophthalmic artery as regards its origin, and branches.The origin of the ophthalmic artery was commonly from the internal carotid artery and more common from the medial third of the superior wall of its supra clinoid segment. So it had to put in mind when performing endonasal operations and hypophyseal area approach that it may injury the ophthalmic artery. Ophthalmic artery is commonly inferior medial to the optic nerve in the intracranial course. In visual field defect that can't be explained by ophthalmoscope, optic compression by ophthalmic artery lesions should be excluded.

The common intra orbital course of the ophthalmic artery that it lies below and lateral to the optic nerve then cross over the nerve then become medial to the optic nerve. This fact has

a clinical importance during catheterization and embolization of the ophthalmic artery or its branches, in the treatment of various vascular or neoplastic lesions There are very wide variations in the order and points of origin of the branches of the ophthalmic artery. Anastomosis between branches of the ophthalmic artery and branches of the external carotid artery supplies additional potential source of collateralization. Knowledge of the detailed anatomy of the ophthalmic artery is important to decrease risks of injury in neuro surgical operations.

Age Changes in Acidophilic Cells of Albino rat Pituitary gland: Histological and Quantitative Immunohistochemical Studies

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Background: Aging produces alterations in some functions of the hypothalamo-pituitary axis leading to sexually dimorphic changes in acidophilic cells of anterior pituitary.
Aim of the work: The present study was designed to monitor the age related changes of acidophils by using histological and specific immunocytochemistry techniques. The quantitative immunohistochemical studies carried out in order to differentiate between the somatotrophs and lactotrophs in both sex at different age groups.
Material and Methods: This study was carried on 60 albino rats, (30 males and 30 non pregnant females). The animals were divided into three age groups, Young group (5-week-old), adult group (6-month-old) and senile group (24-month-old). The glands were subjected to gross morphologic examination, microscopic examination using H&E, Picro Mallory Trichrome, and quantitative immunohistochemical study (using the peroxidase labeled, avidin-biotin (LAB) method) measuring the immunoreactivity.
Results: Regarding the gross morphological study, the increase in the gland weight was more manifested in females in all age groups except in the young age group where the gland weight in male rats was heavier than in female rats. Concerning the histological study, age related reduction of the acidophilic cells with increased intercellular connective tissue framework were observed. Age-related decline of growth hormone and prolactine producing cells were evident by immunohistochemical microscopic analysis. The morphometric analysis confirmed all the histological findings.
Conclusion: aging has a differential impact on the somatotrophs and lactotrophs of male and female rats. Gender difference in pituitary gland structure was recorded.

Neuroprotective Effect of Pentoxifylline in Transient Global Cerebral Ischemia Reperfusion Injury in Alloxan Induced Diabetes in Adult Albino Male Rats

Eman Nageeb Elsayed Draz, Ghada Salah Eldein Aly, Wael Amin Nasr El-Din and Amr A.M. Kamel

Background: Tumor necrosis factor alpha (TNF-α) is one of the most important inflammatory mediators that plays a vital role in the pathogensis of cerebral ischemia as one of diabetic complications. Pentoxifylline (PTX) has anti-inflammatory properties through inhibition of TNF-α production from circulating mononuclear phagocytes, neutrophils, and T lymphocytes and decreases synthesis of several pro-inflammatory cytokines. Aim of this work was to evaluate the possible neuroprotective effect of PTX on a model of transient global cerebral ischemia in alloxan induced diabetes in adult albino male rats.
Methods: One hundred and eight adult male albino rats were divided into 9 groups; global cerebral ischemia was induced by bilateral common carotid arteries occlusion for 30 min. Diabetes mellitus was induced by intraperitoneal (I.P) injection of alloxan. Treatment with PTX was injected I.P. one hour before and after ischemia. Brains were removed and stained with H&E, cresyl violet stains and immunohistichemical stain for TNF-α. morphometric measurments were done by counting viable neurinal cells stained with cresyl violet and the percentage of area of TNF-α positivity.
Results: Ischemic reperfused groups showed highly statistically significant increase (p<0.01) in the mean of positive stained area with TNF-α while the treated gtoups showed statistically significant decrease (p<0.05)in the positive area in comparison to ischemic reperfused groups. The cerebral cortex of PTX treated groups showed statistically significant improvement (p<0.05) in the morphology of neuronaal cells in comparison to the non-treated groups.
Conclusion: PTX exerted neuroprotective activity against transient global cerebral ischemia reperfusion injury in diabetic adult albino male rats.

The importance of anatomical characteristics of aortic arch in aortic coarctation for the prognosis after its treatment.

Marwa Tharwat, Nadia Elabasiry, Mohammad El Tahlawi (Presentation)

Introduction: Coarctation of the aorta accounts for 6·8% of congenital heart disease, with an incidence of one in 12 000 live births. Coarctation is a heterogeneous lesion with variability in the degree and site of obstruction. This anatomical variation has an embryological reflection. Up till

now, there is no sufficient data regarding the effect of this anatomical component of coarctation of the aorta on the short and long term prognosis after its treatment (surgical or percutaneous angioplasty). This relationship has to be clarified.

Aim of the work: We aim to demonstrate the relationship between the anatomical features of aortic arch in case of aortic coarctation and the prognosis on short and long term after its surgical or percutaneous repair.

Patients and methods: We conducted a retrospective study that continued prospectively till the end of the work. The children with aortic coarctation who were repaired surgically or percutaneously by catheter based angioplasty or stenting in the period between 11/2014 and 06/2017 were enrolled. All the descriptive data about this coarctation was collected (echocardiography, CT scan and/or MRI). Anatomical analysis of these data with its embryological background was done. We have then classified these patient according to their anatomical features of aortic arch. Follow-up data on short and long term post treatment of each anatomical class was gathered. Statistical analysis of these data was held to find out the relationship between these anatomical variation and the follow-up results.

Results: Thirty cases were en rolled in this study. 15 cases were treated surgically .the other 15 cases were treated interventionally using ballon or stent. The mean age ± SD was17±12.2. the mean systolic blood pressure ±SD pre treatment was180 ±25. 16 cases have hypoplastic aortic arch.13 cases have abnormal aortic arch anatomy (5 have common trunck of innominate and left common carotid,2 cases have hypoplastic left displaced left subclavian artery, 3 cases have separate right common carotid trunck from aortic arch, 3cases have gothic arch with very close aortic arch branches. We found that all cases with hypoplastic aortic arch had recurrent coarctation 6-9m after management. Cases with abnormal arch anatomy had worse prognosis regarding persistence of hypertension. There was negative correlation between the distance (left common carotid and left subclavian arteries) and the duration before recoarctation.

Conclusion: Arch anatomy may affect the clinical prognosis of coarctation. Abnormal arch anatomy has worse prognosis. The less the distance between left subclavian and left common carotid, the better the prognosis and less incidence of coarctation.

Role of Insulin Growth Factors (Igfs) in Mammalian Blastocyst Development

Adel Abo Regela, Ashraf Hegab, Somia Hassan*, Dalia Mandour, Claire Chazaud (Poster)

Introduction: It was proved that the maternal reproductive tract and the embryos produce insulin growth factors. Optimizing in vitro culture conditions by adding growth factors is important to improve the quality of embryos.

Aim of the work: This study was conducted to spot a light on the role of IGFs on the preimplantation development of in vitro cultured mice embryos.

Materials and methods: The first part of the study was carried out on 1150 C D1(Cluster of Differentiation1) mice embryos by treating the cultured embryos with insulin growth factor-I (IGF-I), insulin growth factor-II(IGF-II) and tyrphostin AG (1024) (IGF-I receptor blocker) between (embryonic day (E) 2.25 and E4.5), (E2.25 and E3.75), (E3.75 and E4.25), (E2.75 and E3.25) and (E3.25 and E4.25). Antibody markers for different embryonic cell lineages were used; NANOG (Homeobox transcription factor) for epiblast, GATA6 (Guanine Adenine Thymine Adenine binding factor 6) for primitive endoderm and CDX2 (Caudal-Type Homeobox Protein 2) for trophectoderm. In addition, caspase3 was used for the apoptotic cells and PH3 (Phosphohistone3) for the proliferating cells. DAPI (Di Amidino Phenyl Indole) was used to label the cell nuclei. The second part of the study was carried out on 30 fresh CD1 mice embryos to identify the expression of insulin growth factor-I receptor (IGF-IR), insulin growth factor-II receptor (IGF-IIR) and insulin growth factor-II binding protein3 (IGF-IIBP3) at 2 different stages of embryonic development (E3.5 and E4.5).

Results: Cultures showed that IGF-I and IGF-II improve embryo survival by decreasing cells that undergo apoptosis. Indeed, there was no change in proliferative rate except at the late culture window. In addition, cultures started before E3.25 showed significant increase in the epiblast precursors. On the other hand, primitive endoderm cells and trophectoderm cells increased with treatment later than the embryonic day 3.25. The second part of the study showed that IGF-IR has higher intensity within the cell membranes of the inner cell mass especially the epiblast cells. IGF-IIR appeared to be present in all cell membranes. IGF-IIBP3 was localized to the inner cell mass cell membranes.

Conclusion: IGF-I and IGF-II improve the quality of the pre-implanted mice embryos. They improve embryo survival by decreasing apoptosis. Also, they increase the number of epiblast precursors within the inner cell mass. These precursors will form all the embryonic tissues. In addition, they increase the number of primitive endoderm cells and the number of trophectoderm cells that will form the extra-embryonic appendices.

Teratogenicity and Genotoxicity of Formaldehyde in Pregnant Mice

Aliaa M. T. A. El-Alkamy, Fardous A. Al- Kalaa, Magdy M. H. El Bordiny*, Melad N. B. kelada. (Poster)

Background: Formaldehyde (FA) is an economically important chemical that is commonly used in the production of industrial, laboratory, household, and cosmetic products. FA is a potential carcinogen and mutagen.

Objectives: This study was designed to evaluate the teratogenicity and genotoxicity of formaldehyde in albino mice exposed to FA.

Material and Methods: The study negative

control group received distilled water. Group (Ib): Positive control: received oral colchicine 2 mg/kg body weight/day on gestational days 6-13. Group II, III& IV: received formaldehyde orally on gestational days 6-13 with concentrations 7, 14 & 21 mg/kg body weight per day respectively. Pregnant females were sacrificed on 18th gestational day. Peripheral blood and bone marrow of dams were examined microscopically for assessment of immature micro-nucleated RBC`S. The uterine horns were examined for resorption sites, and alive or dead fetuses. Extracted living fetuses were examined for external developmental abnormalities and stained for skeletal malformations.
Results: This study revealed significant increased frequency of micronuclei in blood and bone marrow and decreased mitotic index of bone marrow cells of dams exposed to FA compared to controls. Increase frequency of abortion and fetuses mortality. Anomalies among the newborn mice included umbilical hernia, subcutaneous bleeding, ear deformity, and delayed ossification of skull bones. Caudal vertebrae were unossified or showed very small ossification centre. Small for date and decrease in the body weight of the newborns were also noticed.
Conclusion: These findings suggest that formaldehyde is a teratogenic and genotoxic agent.

Effect of Titanium Dioxide Nanoparticles on the Liver of Adult Male Albino Mice and Possible Protective Role of Carnosine

Nada Mohamed M.Soliman Al-Bembawy, Amal Al Shahat Ibrahim, Joseph Amin Aziz and Rania Saad Mohamed Ramadan (Presentation)

Introduction: Titanium dioxide nanoparticles (Tio2NPs) are manufactured worldwide in large quantities for use in a wide range of applications including pigment, plastics, papers, inks, food colorants, toothpastes and cosmetic manufacturing. Tio2NPs have been reported to elicit various adverse cellular effects including oxidative stress. Carnosine is an antioxidant and free radical scavenger and it has been used to combat oxidative stress-induced damage in various tissues. The aim of this work is to examine the liver tissue damage induced by intraperitoneal Tio2NPs in mice and the protective role of carnosine against these changes.
Material and methods: Forty adult male albino mice were classified equally into four groups. Group 1: control mice received regular diet and water. Group 2: carnosine treated mice with 200 mg/kg bw carnosine orally. Group 3: Tio2NPs treated mice each mouse was injected intraperitoneally with 1944 mg/kg bw Tio2NPs. Group 4: Each mouse was injected intraperitoneally with 1944 mg/kg bw Tio2NPs and received orally 200 mg/kg bw carnosine. After 7 days mice from each group were sacrificed and the liver was dissected and subjected to microscopic histopathological and immunohistochemical examination.
Results: Changes in hepatocytes include: vacuolated cytoplasm and congested dilated portal vessels with inflammatory cellular infiltrations. Hepatocytes showed early signs of apoptosis and degeneration with nuclear changes. There were excessive amount of collagen fibers and marked depletion in the amount of glycogen. The histologic alterations observed might be an indication of hepatocyte injury due to Tio2NPs toxicity that interacts with proteins and enzymes in hepatic tissue. This interferes with antioxidant defense mechanisms and generation of reactive oxygen species induce hepatocytes apoptosis and generates inflammatory process resulting in cellular degeneration. Administration of Carnosine with Tio2NPs produced partial to complete improvement of all previous changes.

Anatomic Study of the Coracoid Process: Safety Margin for Osteotomy for Shoulder Surgery

Ayman Ahmed Khanfour, Nehal Mohamed Nabil, and Bahaa Ahmed Motawea, (Presentation)

Background: The Latarjet and Bristow procedures address recurrent anterior shoulder instability in the context of a significant bony defect. However the anatomy of coracoid process with the attached soft tissues has not yet been defined as they relate to coracoid transfer procedures.
Aim of the work: The aim of this work was to obtain safety margin for osteotomy of the coracoid process.
Material and methods: The material of this work included twenty upper limbs of formalin preserved specimens obtained from the Dissecting Room of Anatomy Department, Faculty of Medicine, Alexandria University. Dimensions of the coracoid process were done. Also anatomical measurements between the tip of the coracoid process to the anterior and posterior margins of the tendon of pectoralis minor were recorded. Other measurements between the tip of the coracoid process to the anterior and posterior margins of the middle of coracoacromial ligaments, tip of the coracoid process and upper end of coracohumeral ligament, and tip of the coracoid process to the most distal point of conoid and trapezoid ligaments were recorded.
Results: The mean length, width, and height of the coracoid are 4.25 cm, 1.4 cm and 1.16 cm respectively. The mean distance between the tip of the coracoid process to the anterior and posterior margins of pectoralis minor were 1.07 cm and 2.07 respectively. The mean distance between tip of coracoid process and coracoacromial ligament (anterior and posterior margins), coracohumeral, conoid and trapezoid ligaments were 1.32, 2.19, 1.11, 3.70, and 2.75 cm respectively. There was extension of the insertion of pectoralis minor blending with supraspinatus in 5% of the cases.
Conclusion: A safety margin ranged from 2.07 to 2.76 cm from the tip of the coracoid process is recommended to perform a safe osteotomy

to avoid injury of coracoclavicular ligaments attachments or pectoralis minor tendon.

Effect of leptin on pituitary somatotropes of adolescent and adult male albino rats.

Basma Emad Aboulhoda and Hossam Yahia Sayed (Presentation)

Background: Leptin is a hormone produced by adipose tissue that regulates a number of physiological processes and behaviors including appetite, body weight and neuroendocrine functions. Despite the fact that the somatotropes express leptin receptors, the direct effects of leptin on these cells is still under debate, where leptin has been reported to either augment, downregulate, or exert no effect on pituitary hormones. Given these controversial data, the current study was designed to demonstrate the effect of leptin hormone on adolescent and adult male albino rats.
Material and Methods: Forty male albino rats were divided equally into four groups. Group I included rats aged one month (which is recognized as the age of early adolescence) that received nothing. Group II included adolescent rats that received daily S.C. injection of 8 µg/100g body weight (BW) mouse recombinant leptin. Group III included adult male rats that received nothing. Group IV included adult rats that received daily S.C. injection of 8 µg/100g body weight leptin. After 8 weeks, the pituitary glands were dissected and processed for light microscopic and ultrastructural examination as well.
Results: Somatotropes of the leptin-treated adolescent group showed features of degeneration in the form of rarefaction of their cytoplasm, loss of cytoplasmic organelles and appearance of swollen mitochondrial with fragmented cristae. While somatotropes of leptin-treated adult group displayed marked reduction in their cytoplasmic secretory granules and their rough endoplasmic reticulum was only represented by few scattered arrays. Immunohistochemistry detected statistically significant reduction in growth hormone of leptin-treated adolescent group relative to their non-treated counterparts.
Conclusion: This study pointed out that leptin injection induced various changes in the pituitary somatotropes, the most obvious of which were displayed in adolescent age.

The biochemical and histological changes of hepatocytes of adult male albino rats fed on genetically modified corn

Dalia Ahmed Esmat Abd El Hamid , Nancy Mohamed Ali El Sekily, Fardous Sorour Katb Karawya, Amal Abd El Monsef Abo El Magd (Poster)

Introduction: Genetically engineered foods saturate our diet today. Plant foods produced through genetic engineering, including soybean, maize, canola, rice, and potatoes, have already reached the consumer marketplace. But, the two most cultivated GM crops are maize and soybean, which represent the staple constituents of many foods. There is a growing concern that introducing foreign genes into food plants may have an unexpected and negative impact on human health. A food safety assessment of genetically modified corn has been performed by other scientists on composition, nutrition, allergenicity and toxicology analyses in accordance to the substance equivalence principle, and only few were supported by histopathological evidences.
Aim: The aim of the present work is to study the biochemical and histological changes of hepatocytes of adult male albino rats fed on genetically modified corn.
Materials and methods: This study was carried out on twenty adult male albino rats, each of average weight ranging from 150-200 gm and 6-8 weeks of age. In the experiment, the animals were randomly divided into two main groups: Group I: (control group) that were given standard diet (milk, bread and tap water) for three months. Group II: (experimental group) were fed 50% genetically modified corn and 50% standard diet (milk & bread) for three months. At the end of experimental period (three months), analysis of aspartate aminotransferase (AST)/ serum glutamic oxaloacetic transaminase (SGOT) and alanine aminotransferase (ALT)/ serum glutamic-pyruvic transaminase (SGPT) was done. Fresh specimens were taken from the right lobe of liver of all rats for light microscopic examination, for demonstration of collagen by Gomori's Trichrome stain, for demonstration of glycogen by Best's carmine stain, to demonstrate the bile canaliculi by Aoyama's method and Electron microscopic study.
Results: In the present work, the mean of ALT and AST in group (II) was significantly increased after eating genetic modified corn, compared to value of control group. Light microscopic examination of the histological sections of rat's liver group II for three months showed, diffuse affection of the hepatic lobules. The hepatic architecture was disorganized with marked affection of most of hepatocytes. They showed extensive vacuolation of their cytoplasm. Some cells appeared with eccentric dense irregular nuclei, others appeared with karyolytic nuclei, most of the blood sinusoids between the affected hepatic cords show prominent nuclei of Kupffer cells lining the sinusoids, the portal area revealed evident proliferation of bile ducts with congestion of portal vessels.
Conclusion: Genetically modified corn induced evident damage in hepatocytes of adult male albino rats.

Electrophysiological study of Martin-Gruber anastomosis in a sample of Egyptians

Emmanuel Kamal Aziz Saba (Presentation)

Introduction: Martin-Gruber anastomosis (MGA) is one of the most common anomalous innervations present in the body. Missing these

anomalous innervations may easily be mistaken for technical pitfalls or even for actual pathology.
Aim: The aim of the current study was to determine the presence and the frequency of MGA by electrophysiological examination in a sample of Egyptian subjects. Settings and Design: It is a single-center public hospital-based electromyography laboratory. It is a cross sectional study of consecutive apparently healthy volunteers.
Subjects and methods: The study included 200 forearms from 100 apparently healthy Egyptian volunteers. Electrophysiological studies in the form of motor conduction study for the median and ulnar nerves were performed by recording the hypothenar, first dorsal inerosseous and thenar muscles. Statistical analysis used: Qualitative data were analyzed using Pearson's Chi-square test and Fisher's Exact test.
Results: The present study included 31 men (31%) and 69 women (69%). MGA was found in 39 forearms (19.5%) of 26 subjects (26%) electrophysiologically. There was no statistical significant difference between the occurrence of MGA in men versus women (P=0.127). The commonest form was MGA to first dorsal interosseous muscle. It was present in 30 forearms (15%) of 24 subjects (24%). MGA to thenar muscles was present in 13 forearms (6.5%) of 12 subjects (12%). MGA to abductor digiti minimi muscle was present in 5 forearms (2.5%) of 5 subjects (5%).
Conclusions: MGA is present in Egyptians. The frequency of occurrence of MGA in a sample of Egyptian subjects was found in 39 forearms (19.5%) of 26 subjects (26%) in electrophysiological examination.

The Toxic Effect of Aluminium Hydroxide on the Testis of Albino Rats and Possible Protective Role of Pomegranate Molasses: Histological and Immunohistochemical Study

Rasha Ibrahim Amer Ali, El Sayed Mohammed Aly Metwally, Meriam Ramzy Riad Wafaa Abdel Rahman Ahmed, Mona Abdel Hameid Yehia. (Poster)

Background: Sertoli cells are one of the major cell types in testes that provide nutrition and structural support for germ cell development. Cytokeratin 18 protein is consistently expressed in immature Sertoli cells of prepubertal seminiferous tubules, but is completely absent in normal, mature seminiferous tubules
Objective: The objective of this study were to examine the histological changes in the testis after the administration of aluminum hydroxide and the possible protective role of pomegranate molasses.
Materials and methods: Sixty male albino rats of prepupertal age were divided into three equal groups: (control group); (Aluminum hydroxide treated group) received oral aluminum hydroxide at a dose of 30 mg/kg b. wt/day; (protected group) received both aluminum hydroxide (at the same previous dose) and pomegranate molesses in a dose of 0.5ml (PM) plus 0.5ml distilled water orally. At the end of the experiment (8 weeks), all animals were sacrificed and their testes were excised. Paraffin sections were prepared for examing under the light microscope,used histomorphological stain and immunohistochemical DAB stain of Cytockeratin protein 18 by avidin-biotin complex protocol.
Results: After the administration of aluminum hydroxide(AD), some seminiferous tubules had disturbed basal lamina and disorganized germinal epithelium. The spermatogenic cells decreased in number to few layers or became undifferentiated hyperprolifirating germ cells.The concomitant administration of pomegranate molasses with aluminum hydroxide showed an alleviation in histopathological changes induced by aluminum hydroxide in the structures of testis. In addition, the increased number of sertoli cell was noticed in grouped treated with AD and decreased in group treated with concomitant administration.
Conclusion: the present study showed that exposure to aluminum hydroxide resulted in marked degenerative effects on the rats' testis, but, they were improved with the concomitant administration of pomegranate molasses, as well as, the immunohistochemical detection of cytokeratin 18 in Sertoli cells may be provided as a sensitive marker for immature or damaged testes.

Assessment of the Potential Genotoxicity and Cardiac Teratogenicity of Venlafaxine on Embryos of Pregnant Black Mice

Lobna Mohammed .M. Ali Abd El Mottelib, Melad Naem Beshri, El Sayed Ali Metwaly, Maha Diaa El Deen Safwat. (Poster)

Background: Depression during pregnancy is a very common problem worldwide, so the rate of the exposure to antidepressant medications during pregnancy is very high. In Egypt, about 60% of pregnant women experience antenatal depression. The aim of this study is to investigate the effect of venlafaxine which is one of the most widely prescribed SSRI- on DNA, and also study its possible teratogenic effect on cardiac development.
Material and methods: The present study was carried out on fifty pregnant black mice (C57BL/6). The mice were randomly assigned to one of two groups: a control and venlafaxine-treated groups receiving (3mg, 10mg, 30mg and 100mg/kg/day). The fetuses were dissected for the evaluation of their cardiac structure. The micronucleus test was used to detect the ability of venlafaxine to induce DNA damage.
Results: The present work showed that administration of increasing concentrations of venlafaxine resulted in significant increase in the incidence of embryo heart anomalies in black mice as VSD, pulmonary trunk dilatation and right ventricle enlargement as compared to the control group. Also, this study showed an increase

in the frequency of micronuclei in the blood of the adult mice after exposure to increasing dose of venlafaxine.
Conclusion: Physicians should make a proper decision regarding prescription of SSRI in general and venlafaxine, in particular, to treat depression during pregnancy weighing the risks and benefits for both mother and fetus.

Induced Ovarian Hyperstimulation Syndrome in Female Albino Rats. Comparison Between the Protective Effect of cabergoline and Meloxicam

Marwa Mady, Ayman Khanfour, Fouad Heikal, Wafaa AbdelRahman, Amany Abdelbary and Huda Khalifa (Poster)

Background: Ovarian hyper stimulation syndrome (OHSS) is a well recognized, potentially life-threatening iatrogenic complication of ovulation induction therapy. No OHSS specific therapy is available till now. Human chorionic gonadotropin (hCG) triggers this syndrome. Ovarian hypersecretion of vascular endothelial growth factor (VEGF) has been identified as a prime causative factor, playing a major role in the observed increase in angiogenesis and vascular permeability that are pathophysiological components of OHSS.
Aim of the work: The aim of this work was to compare the possible protective effects of meloxicam and cabergoline on induced ovarian hyper stimulation syndrome model in female albino rats.
Material and methods: 70 female albino rats 22 days of age, with an average body weight of 37-52 gm were divided into seven equal groups; 10 rats each. Group (I): normal control. Group (IIa): animals were injected with 10 IU pregnant mare's serum gonadotropin (PMSG) on four consecutive days, beginning from the day 29 of life, and 30 IU hCG on day 33. Group (IIb): animals were injected as group IIa + 600 µg/kg meloxicam two hours after each PMSG and hCG administration via oral gavage. Group (IIc): animals were injected as group IIa + 100µg/kg cabergoline two hours after each PMSG and hCG administration via oral gavage. Group (IIIa): animals were injected with 10 IU pregnant mare's serum gonadotropin (PMSG) on four consecutive days, beginning from the day 29 of life, and 10 IU hCG on day 33. Group (IIIb): animals were injected as group IIIa + 600 µg/kg meloxicam two hours after each PMSG and hCG administration via oral gavage. Group (IIIc): animals were injected as group IIIa+100µg/kg cabergoline two hours after each PMSG and hCG administration via oral gavage. Body weight, estrogen level, VEGF expression, ovarian weight, and diameter as well as histopathological examination were addressed to measures the efficacy of cabergoline and meloxicam for preventing/treating OHSS.
Results: all examined parameters including (ovarian weight and diameter, estrogen level as well as histopathological changes and VEGF expression) significantly increased in both moderate and severe OHSS groups in comparison to control group, those changes are mostly does-dependent. Furthermore, administration of Cb2 and meloxicam was significantly able to decrease those changes; this reduction was surprisingly more significant in low dose group of each drug. However no significant difference was detected between both drugs.

Skeletal Teratogenicity of Tramadol and Histological Study of Its Effect on Cortical Neuronal Cells of Pregnant Mice

Mennatu-Allah A Saqr, Dalia M Biram, Eman E Beheiry, Hoda M Khalifa, Amany M El-Agwany (presentation)

Background: Tramadol is a centrally acting opioid analgesic that is structurally similar to codeine and morphine. Because the abuse of tramadol has become a serious problem in Egypt, it has been up-scheduled in 2009. Despite the wide use of tramadol little is known about its possible teratogenicity.
The Objective: of the present study was to explore the possible skeletal teratogenicity induced by tramadol administration to black mice and also to elucidate its histological effect on neuronal cells of the cerebral cortex of the pregnant mice.
Methods: After matting of forty black mice C57BL/6 the suspected pregnant mice were randomly divided into four groups, ten mice per each; control, tramadol 50 mg/kg (T50), tramadol 100 mg/kg (T100) and tramadol 150 mg/kg (T150).Tramadol was given once daily by orogastric tube. The mice were sacrificed at gestational day18 by cervical dislocation. Cesarean sections were performed and the number of implantation sites, living and dead fetuses, and resorptions were recorded. The fetuses had been weighted, examined for external malformations and stained by double staining technique (using both Alcian blue and Alizarin red stains) for skeletal anomalies examination. Cortical brain specimens from the pregnant mice were dissected and processed for light microscopic examination.
Results: A significant dose-dependent fetal weight reduction, internal hemorrhage, defective eye development, incomplete ossification of the whole skeleton, open arch of atlas and axis, supernumerary lumbar rib as well as increase in the number of fetal losses was observed in tramadol groups compared to the control. Histological examination of the cerebral cortices of the tramadol-treated pregnant mice revealed evident dose-dependent histomorphological changes compared to the control. There was a disturbance of the classically arranged six layers. Neuronal changes included signs of cellular atrophy and degeneration. Toluidine blue-stained sections

revealed decreased number of the neuronal Nissl granules.
Conclusions: Tramadol administration during pregnancy proved to cause significant fetal growth retardation, delayed skeletal ossification, eye anomalies and internal hemorrhage. It also induced cerebral cortical neuronal atrophy and degeneration of the pregnant mice. This may provide a possible explanation for the behavioral and psychological changes associated with tramadol abuse. Future studies should address the underlying mechanisms and clinical implication of tramadol teratogenicity.

Is There A Pathogenic Link Between Hypolipidemia And Haemorrhagic Stroke?

Noha Badie, Noha Zahran, Salma Soliman, Azza Baraka, Abeer Dief and Rasha Elshinety (Poster)

Background: Intracerebral haemorrhage (ICH) accounts for about 10% to 15% of strokes and is a devastating disease for which there are currently no curative treatment options. Therefore, identification of modifiable risk factors is highly important. Hypolipidemia has been recognized as a possible risk factor for ICH. Several studies have demonstrated that low cholesterol is a risk factor for ICH, others have reported that hypercholesterolemia is protective against ICH. The current study was designed to demonstrate the effect of low LDL levels on vascular endothelial cells integrity and subsequently on the development of ICH in rats. Additionally, the impact of maintaining endothelial vascular integrity (by L- arginine) in hypolipidemic rats was assessed.
Material and methods: This study was carried on 50 male Wistar albino rats divided into 3 groups: Group I: normal Sham-operated rats; Group II::rats received 2% gum acacia daily orally for four weeks prior to induction of intracranial haemorrhage (ICH) through autologous blood stereotactic injection in the basal ganglia. Group III: rats received atorvastatin daily orally for four weeks prior to induction of ICH. Two weeks before the induction of intracerebral haemorrhage, the experimental groups were subdivided into 2 subgroups; group a: rats received L-arginine daily orally for two weeks and group b; rats were not received L-arginine. Behavioural tests were performed immediately after induction of OCH and 6 days later.
Results: Rats showed marked impairment in motor functions immediately after ICH, however, few days after ICH they showed marked improvement. Histological results of H&E sections by using light microscope showed areas of ICH affecting half thickness of cerebral cortex with disruption of nearby tissue. For experimental groups, revealed areas of pyramidal cell destruction (red neurons) and gliosis espically in rats under atrovastatin treatment, while rats received L-arginine with atrovastatin showed mild improvement of cerebral tissue.

Expression of Glial Fibrillary Acidic Protein in the Cerebral Cortex and Cerebellum of Diabetic Rats; Possible protective Effect of Insulin and Vitamin E

Rania N Sherif, Hany Sonpol, Adel A Bondok, Adel A Elhawary, Mohamed Abdo (Poster)

Introduction: Diabetes mellitus (DM) disturbs the CNS function and may injure the brain. Astrocytes play an important role in the neuronal protection and viability. They play a role in protection against oxidative stress, glucose metabolism and supplying energy for neurons.
AIM: The current study was designed to examine the effect of uncontrolled DM on neurons and astrocytes and on the expression of GFAP in cerebral cortex and cerebellum of diabetic albino rats and to investigate the possible protective effect of treatment with insulin and vitamin E.
Methods: Thirty-two albino rats were divided into; control, STZ diabetic, insulin and vitamin E groups. Eight weeks after diabetes induction, specimens of the cerebral cortex and cerebellum were dissected out, processed for measurement of the oxidative stress markers and for staining with cresyl violet and immune-histochemical stain and western blotting for the GFAP.
Results: DM resulted in significant decrease in the expression of GFAP in the cerebellum of the diabetic rats with significant increase in the markers of oxidative stress and noticeable changes in the Purkinje cells of the cerebellum. Meanwhile, there was a significant increase in expression of GFAP in the cerebral cortex, with few degenerative neuronal changes and significant increase in the oxidative stress. These changes had been improved in both insulin and vitamin E treated groups.
Conclusion: Diabetes induces different GFAP expression in the cerebellum and cerebral cortex that can be minimized by insulin or vitamin E.

Histological Study of the Toxic Effect of Titanium Dioxide Nanoparticles on the Seminipherous Tubules of the Testis in Adult Male Albino Rats and the Possible Protective Effect of Garlic Oil

Rasha Mohamed, AbeerGaberAhmed, EhabMostafa El-Zawawy, EmanElazabBeheiry, Hala Mahmoud Abdelmoaty (Poster)

Background: Nanotechnology has recently emerged as a promising approach for treatment and diagnosis of a variety of diseases. Titanium dioxide nanoparticles (TiO2 NPs) has many useful applications in various fields, including biology, medicine, electronics, cosmetics, drug carriers in the body, water and wastewater treatment. As such, there is increased risk of exposure to

potential hazardous effect of TiO2 NPs.
Aim of the work: is to study the histological effects of TiO2 NPs on seminiferous tubules in adult male albino rats and to evaluate the possible protective effect of garlic oil administration.Its effect on the serum testosterone level was also evaluated.
Material and methods: Forty Swiss adult male albino ratswere divided randomly into four groups, each contained 10 rats and subjected to the study for14 days. Group I used as a control group. Group II (TiO2NPs): The rats were intravenously injected with TiO2 NPs at a doseof300mg/kg once daily. Group III (Garlic oil): The rats received Garlic oil at a dose of 100mg/kg once daily. Group IV (TiO2NPs + Garlic oil): The rats received both TiO2 NPs andgarlic oilat the same doses of group II and group III respectively. At the end of the study period the rats were sacrificed and the testis was dissected, divided into two portions and then processed for light microscopic (H&E stain) and transmission electron microscopic examination. Blood sample was collected from the rats in each group for measuring the testosterone hormone level. TiO2 NPs were characterized using transmission electron microscope, Nano Zeta sizer particle analyzer and X-ray diffraction.
Results: Blood testesteronelevel was significantly decreased in TiO2 NPs groupand showedinsignificant difference ingarlic oil group and TiO2NPs + garlic oil group as compared with the control group.Histologically, seminiferous tubules of the control group revealed normal histological structure. Light microscopic examination of group II, revealed several changes in the seminiferous tubules such as distortion, basal lamina disruption, and focal widening of the interstitium. Some tubules appeared with sloughed spermatogenic cells in their lumina or hypoplastic germinal epithelium. Many spermatogenic cells were seen with evident cytoplasmic vacuoles or widening of the intercellular spaces. Ultrastructural results confirmed the light microscopic findings. Group III results showed nearly the control appearance of the seminiferous tubules as in group I. Group IV results showed variable degrees of preservation of histological structure of the seminiferoustubules and spermatogenic cells.
Conclusion: TiO2 NPs can cause testicular affection that can be prevented to a great extent by garlic acid.

The protective Role of Zinc Sulphate against Adverse Orlistat-Induced Pancreatic Changes: Histological and Immunohistochemical Study (Poster)
Reda A.N. Imam, Waleed A. Galeel, Mohammed M. A. Moaty

Background: Pancreatic lipase inhibitor orlistat was associated with induction of pancreatitis in humans. Zinc supplementation is effective for preventing or ameliorating diabetes in patients and animals.
Aim of Work: declaring the Orlistat-induced adverse pancreatic changes and exploring the protective role of zinc sulpahate.
Material and Methods: Forty adult male rats were used in this study. The animals were divided into four groups; Group I (control group), Group II received Orlistat (32 mg/kg/day) for 8 weeks, Group III received Orlistat together with zinc sulphate (100 mg/kg) for 8 weeks, Group IV received zinc sulphate for 8 weeks. At the end of experiment the animals were sacrificed and the pancreatic tissue was taken, processed paraffin sections were obtained, stained with Hx & E, Masson's trichrome and immunohistochemical stains: Caspase 3 and antiinsulin.
Results: Eight weeks after Orlistat administration, the pancreatic tissue showed cellular degeneration of its acini. The histological changes were markedly improved in group III. The area % of collagen fibers and positive caspase 3 reaction in group III was significantly decreased ($p \leq 0.05$) as compared to group II. The area % of positive antiinsulin reaction in group III was increased but none significantly ($p \geq 0.05$) as compared to group II.
Conclusion: Zinc sulphate could ameliorate adverse pancreatic changes in a rat model of orlistat-induced pancreatitis.

Attenuation of Lipopolysaccharide Induced Lung Inflammation by Ascorbic Acid in Rats; Histopathological and Ultrastructural study
Hazem Abdelhamid Mohamed, Yasser M Elbastawisy and Wael M Elsaed (Poster)

Introduction: Lipopolysaccharide induces acute lung injury in experimental animals in a similar way to acute respiratory distress syndrome in human. This disease is a major clinical problem with high mortality rate. Ascorbic acid; a reduced form of Vitamin C, is a strong antioxidant which is proofed to act against sepsis induced tissue inflammation.
Aim of the work: This study was conducted to investigate the antioxidant effects of the Ascorbic acid on the lipopolysaccride induced acute lung injury in histopathological and ultrastructural levels.
Material and methods: Thirty male rats of 320-360 weight were divided into 3 groups. Group (I) served as the controls, group (II) received lipopolysaccride and group (III) received lipopolysaccride and Ascorbic acid. Blood and lung tissue samples were collected. The lung tissues were prepared for light and electron microscope examination. Paraffin sections stained with hematoxylin and eosin, Masson's trichrome and Sirius red stains. Samples were examined and scored by image analyzing system. The main histopathological lung damage score was calculated. The resulting data were statistically analyzed.

Results: lung tissues of group II showed exuberant pulmonary inflammation with congestion and infiltration with leukocytes, with time, marked interstitial fibrosis was aberrant compared to the controls. Electron microscopy showed loss of the capillary barrier and micro vascular thrombosis. In group III, the inflammatory picture and fibrosis was significantly improved, which was proofed by statistical analysis.

Conclusion: Ascorbic Acid has a significant ameliorating effect on the inflammatory process accompanying acute lung injury induced by lipopolysacchride.