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Effect of *Terminalia arjuna* ethanolic extraction on cardiovascular system in albino Wistar rats

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Introduction: The ethanolic extraction of *Terminalia arjuna* is herbal medicine using for over three centuries, primarily as a cardiac tonic. Clinical evaluation of this botanical medicine indicates benefits in the treatment of coronary artery disease, heart failure and mainly dyslipidemia. According to Indian system of medicine *T. arjuna* is one of the best rejuvenator therapy (Rasayana Dravya) which acts as anti cancer drug. Active constituents of these drugs are tannins, cardenolide, triterpenoids saponins (arjunic acid, arjunolic acid, arjungenin and arjunglycosides), flavonoids (arjunone, arjunolone, luteolin) phytosterols, calcium, magnesium, zinc, and copper.

Aim and objective: The objectives of present study were to study the effect of *T. arjuna* extract on cardiovascular system and biochemical changes in Albino Wistar rats.

Material and methods: Adult albino Wistar rats weighing between 180 and 230 g were used in the study. It is planned to administer the extract of above mentioned drug to the animals in the following groups. Group 1 served as normal control, Group 2 hyperlipidemic, Group 3 hyperlipidemia with extract of *T. arjuna*. It is also planned to study the histological structure of (1) ventrical myocardial thickness. (2) Arota: (a) Tunica intima thickness, (b) Tunica media thickness, (c) Tunica adventitia thickness. (3) The biochemical parameters such as lipid profile, nitric oxide, calcium, sodium and potassium. We have also estimated microscopic thickness of tunica intima and tunica media of elastic and muscular arteries by using dizimizer image analyzer.

Result: The present study shown that effect of sub-chronic induced hyperlipidemia and treated with *T. arjuna* very effective on the endothelium of blood vessels histology details will discuss during the presentation.

Conclusion: The present study is an insight to the histological changes observed in the gonads affected by diabetes.

Conflicts of interest

The authors have none to declare.

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A morphological, morphometric and histological study of human mitral valve leaflets in different age groups and its implication in valve conserving techniques

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Introduction: Mitral valve may be affected by a host of diseases, the commonest being rheumatic fever. Increasingly frequent use of conservative surgical techniques warrants thorough knowledge of the design of the normal mitral valve.

Materials and methods: The present study analyzed 60 healthy and fresh human hearts. The study was done in three age groups. Position of the mitral valve cusps and the commissures, scallops, clefts, notches were noted. Various measurements of the mitral leaflets were recorded. Histological features of the mitral valve leaflets were also noted.

Observations: Mean annular length of anterior and posterior leaflets revealed an increase in annular length of both leaflets with progress of age and annular length of posterior leaflet was more. The average height of anterior leaflet was more than that of any of the scallops of posterior leaflet. Mean surface area of anterior leaflet was more than that of posterior one. The tough fibrous sheet of dense collagenous tissue, lamina fibrosa, formed the main bulk of the valve.

Discussion: The anterior leaflet was seen to guard one-third of the circumference of the mitral orifice and posterior leaflet guarding two-third of the circumference. The anterior leaflet was clearly a unitary structure whereas the posterior leaflet had several subunits within its length. The mitral valve was separated into eight segments. Anterior leaflet had a relatively smooth, free margin with few or no indentations, whereas posterior leaflet had two indentations at its free margin which divided it into three scallops.

Conflicts of interest

The author has none to declare.

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The histogenesis of human liver a perspective study on glycogen content and hematopoietic blasts of liver

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Background/introduction: Liver is the largest compound gland in the body. It plays a major role in metabolism and has a number of exocrine and endocrine functions in the body. It is known that function of an organ depends on histological maturation of that organ. By studying the microscopic structure of liver at various fetal ages will help to establish the time when the liver becomes fully functional.

Aim: To study the histogenesis of human liver a perspective study on glycogen content and hematopoietic blasts of liver.

Objectives: The histogenesis of liver at different stages of prenatal period is studied under: organization of hepatocytes and plates of cells, glycogen content and hematopoietic blasts of liver.

Materials and methods: In the present study 50 stillborn fetuses and fetuses of spontaneous abortions were obtained from the department of obstetrics and gynecology, Armed Forces Medical College and Command Hospital Pune. After fixation fetuses were carefully dissected, liver taken out & placed in containers with 10% buffered formalin solution for 2–4 days, these livers were then processed to obtain thin sections. Sections were stained using Haematoxylin & Eosin, Periodic Acid Schiff (PAS) and examined under light microscope.

Results and conclusion: Organization of hepatocytes, appearance of central veins and endothelial lining of sinusoidal wall was noted at 12–18 weeks of gestation. The appearance of portal tract to form the classical hepatic lobule was identified first at 22-week stage. These findings were in concurrence with the previous studies done by earlier workers. Which correlates with the functional maturation of the liver mentioned in many literatures.

Conflicts of interest

The authors have none to declare.

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Vitamin E isoforms (d α-tocopherol and δ-tocotrienol) promote healing of secondary skin wounds in diabetic rats

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Introduction: Oxidative stress is one of the important factors that affect the delayed wound healing in diabetes. Vitamin E is a mixture of eight compounds such as α, β, γ, δ-tocopherols and tocotrienols and is an effective antioxidant. This study was designed to explore the combined effect of d α-tocopherol and δ-tocotrienol in wound healing process in healthy and alloxan-induced diabetic rats.

Materials and methods: Twenty-four albino rats were divided into four groups; healthy control, diabetic control, healthy treated and diabetic treated. Treated groups received d α-tocopherol (100 mg/kg body weight) and high δ-tocotrienol (90% δ and 10% γ-tocotrienols, 100 mg/kg body weight) orally daily for 3 weeks. Under general anesthesia, full-thickness excisional skin wounds were created on the dorsal surface of thoracic region. Progression of wound healing was assessed by macroscopic and microscopic features of wounds recorded at weekly intervals. Serum biochemical parameters were also estimated for each animal at the end of 3 weeks.

Results: It was observed that reepithelialization, matrix remodeling and reappearance of epidermal appendages were earlier in treated groups as compared to control groups and this was also associated with significantly increased serum antioxidant status and total protein content.

Conclusion: Oral co-administration of d α-tocopherol and high δ-tocotrienol promotes skin wound healing in both healthy and alloxan-induced diabetic rats through its antioxidant potency, it is therefore suggested that vitamin E isoforms hold promising future in the effective management of wounds in diabetics.

Conflicts of interest

The authors have none to declare.

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A morphometric study of human subcarinal angle in different age groups in both sexes and its clinical implications

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Introduction: The subcarinal angle is the angle between the right and left main bronchus. Increase in the subcarinal angle is mentioned as an indirect sign of pathology in the heart or mediastinum such as left atrial enlargement, generalized cardiomegaly, lobar collapse, subcarinal mass or pericardial effusion.

Method: A morphometric study of human subcarinal angle was undertaken in the Department of Anatomy, Narayan Medical College and Hospital, Jamuhar, Sasaram, Rohtas, Bihar, India, on 60 specimens (34 male and 26 female) procured from relatively fresh disease free cadavers from Rohtas Police Morgue. Subcarinal angle was measured with a diagonal scale on the photograph of the specimen by tracing the medial borders of the right and left principal bronchi with the marker pen. The standard error (SE), standard deviation (SD) and test of significance were calculated using independent sample '*t*' test and multiple comparison tests.

Observation: The present investigation revealed a wide variation in the subcarinal angle, in a same age group as well as in different age groups in both sexes. The mean subcarinal angle in male was 59.1° and 53.1° in females.

Conclusion: The study of these subcarinal angle variations is of profound clinical importance as it may help the clinicians to understand the etiology of several pulmonary and cardiac diseases and the surgeons to deal with resection and reconstruction of the tracheobronchial tree. This knowledge is also helpful for smooth conduction of some maneuvers like endotracheal intubation and bronchoscopic procedures.

Conflicts of interest

The authors have none to declare.

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Branching pattern of superior mesenteric artery and its clinical importance – Anatomical study

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Introduction: Knowledge of normal anatomy of superior mesenteric artery (SMA) and its variations is essential for a successful resection anastomosis and in treatment of ischemic disorder of colon. In stenotic or occlusive disease of SMA or its colic branches, the presence of collateral channels is critical for maintaining the integrity of vascular supply to the affected region.

Materials and methods: The present study was conducted on 30 formalin fixed adult human cadavers. We observed the vertebral level of origin, branching pattern of colic branches of SMA and their variations. The status of anastomosis in the formation of marginal artery in relation to SMA was also been noted.

Observations: In the present study, SMA arose from the ventral aspect of the abdominal aorta, the vertebral level of origin was ranging from upper border of 1st to lower border of 2nd lumbar vertebra. SMA followed the usual branching pattern in 46% cases and in 54% cases, showed variations. These variations were classified into 3 groups and further sub groups. The part of marginal artery up to the right two-third of transverse colon was found complete in all cases and established collateral circulation between colic branches of SMA.

Conclusion: The awareness of variant anatomy of SMA can result in more accurate interpretation of disease and vascular involvement in diagnostic imaging. It also helps in optimal selection of treatment options and operative planning to minimize iatrogenic injuries from both surgical and interventional radiological procedures.

Conflicts of interest

The authors have none to declare.

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