Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.031

25

Morphometric study of suprascapular notch in Indian dry scapulae with specific reference to the incidence of completely ossified superior transverse scapular ligament

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Background: The suprascapular notch, a depression on the lateral part of the superior border of the scapula, medial to the coracoid process, is bridged by the superior transverse scapular ligament, which is sometimes ossified and the foramen, which is thus completed, transmits the suprascapular nerve to the supraspinatus fossa. Variations in the morphology of suprascapular notch have been identified as one of the causes of suprascapular nerve entrapment. Rengachary et al. classified this notch into six types, based on its shape.

Aim of study: To study morphological variations of suprascapular notch in Indian dry scapulae and to analyze the incidence of completely ossified superior transverse scapular ligament with other ethnic populations which have been cited earlier.

Materials and methods: A total of 100 human dry scapulae which were obtained from the Department of Anatomy, Narayana Medical College, Nellore. The type of suprascapular notch was noted and it was recorded as per the description given by Rengachary et al. The results of the present study were compared with the results of previous authors in different populations.

Results: In our study, out of 100 scapulae, 40 (10%), were identified to have completely ossified superior transverse scapular ligaments. The frequencies of various types of suprascapular notches were: Type I – 19%, Type II – 15%, Type III – 30%, Type IV – 13%, Type V – 20%, Type VI – 10%.

Conclusion: The growing importance of such variations of suprascapular notch are useful for the surgeons, orthopedicians and anatomists to arrive at the correct diagnosis and do the necessary treatment.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.032

26

Expression of neuropeptide Y in dorsal root ganglia following hind paw incision in rats

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Background: Neuropeptide Y (NPY) is widely distributed in the mammalian nervous system. NPY has established role in circadian rhythm, blood pressure, appetite, obesity and memory. The aim was to investigate NPY expression in dorsal root ganglion during pain. The hind paw incision model in rats mimics postoperative pain in humans.

Methods: Sprague-Dawley rats ($n = 24$) were randomly divided into 2 groups – control ($n = 6$) and incision ($n = 18$) groups. Behavioural test for nociception was done under basal condition and after surgical incision in right hindpaw at different time periods (day 1, 3 and 5) using Hargreaves test. The procedure of incision has been previously reported. The rats were perfused with 4% paraformaldehyde followed by removal of dorsal root ganglia at L4 level. The tissue was processed for immunohistochemical localisation for NPY.

Results: Postincisional groups (day 1, day 3 and day 5) exhibited significant decrease of paw withdrawal latency in comparison to control rats. The NPY expression was mainly noted in the small-sized dorsal root ganglion neurons. Some neurons showed intense staining particularly, on day 5.

Conclusion: Decreased latency indicated nociception, particularly on day 1. Compared to control, expression of NPY was decreased on day 1. This could be correlated with increased axoplasmic flow towards the spinal cord. On day 5, NPY expression was highest in DRG. This could be due to decreased transfer towards the spinal cord from the site of synthesis.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.033

27

Effect of metformin on testicular histology of adult male offsprings

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Introduction: Metformin is an oral anti-diabetic drug, primarily used for treating polycystic ovary syndrome (PCOS) which is a very common cause of female infertility. In addition, it is also used in treatment of type 2 diabetes mellitus. As it benefits by improving insulin resistance of tissues it is also widely used in gestational diabetes. Treatment is given throughout the pregnancy to reduce the complications such as pregnancy loss. Metformin administered during pregnancy crosses the placental barrier and also reduces the sex hormone binding globulin (SHBG) level and alters the Leydig cell functions which ultimately affect the testicular development in male offspring.

Aim: To study the histological changes occurring in the male gonads following maternal exposure to metformin.

Materials and methods: The adult Swiss albino mice were administered with 50, 100 and 200 mg/kg body weight (intraperitoneally), every day for 4 weeks. After the completion of the treatment, the female mice were mated with healthy fertile males and the litters born were monitored till they attained 8 weeks. Testes were collected and processed for histological study by taking 5 μm thick sections and stained with Haematoxylin & Eosin.

Results: A significant reduction in the number of spermatogonial cells, reduced diameter of seminiferous tubules and increased number of tubules with incomplete spermatogenesis was observed in offspring born to females treated with 200 mg/kg metformin. The data also supports the epididymal sperm parameters.

Conclusion: The result indicates that administration of metformin at higher doses can have detrimental effect on malegonadogenesis.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.034

28

Effect of electromagnetic radiation of mobile phone in testis of albino rats

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Background: In the past two decades use of mobile phones has increased tremendously. The widespread use of mobile phones has raised the research activities in many countries to determine the effect of electromagnetic radiation emitted from it. The present study was carried out to see the possible effects of electromagnetic radiation on reproductive system.

Materials and methods: Eighteen male albino rats were divided into three groups of 6 each, i.e. control and two experimental groups. In experimental groups animals were exposed to electromagnetic radiation by placing a mobile phone over the cage for 5 h per day for two months. Mobile phone was turned to answering mode for ½ hour per day in one group and 1 h in other group. After 2 months, all the animals were sacrificed and were dissected to see the histology of testis.

Results: Results showed reduced diameter of seminiferous tubules, disruption and thickening of basement membrane, disorganized germinal epithelium, and reduced number of all the germ cells, detachment of sertoli cells from basement membrane and reduced size and vacuolations in the Leydig cells.

Conclusion: Thus it can be concluded that mobile phone radiations adversely affect the reproductive system by producing histopathological changes in testis.

Conflicts of interest

The author has none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.035

29

Effect of mobile phone radiation on thyroid glands of rats

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Introduction: Electromagnetic radiation emitted by cell phone tower is a new form of environmental pollution and is new health hazard. This radio frequency radiation pollution and is a matter of world wide concern due to its undesirable effect on human health. The present study was done to visualize the effect of cell phone radiation on thyroid glands of rat by studying its different parameters.

Materials and methods: The study was conducted in Department of Anatomy of BRD Medical College Gorakhpur on male rats for duration of 3 months. Mobile phone used was GSM model with bandwidth 900 MHz and S.A.R 0.38 W/Kg.

Observation and result: With increase in exposure of radiation the microscopic anatomy of thyroid was getting distorted also hormonal analysis shows increase in level of TSH and decrease in T4.

Discussion: Despite years of research the question of whether exposure to microwave radiation emitted by mobile phone affect human health remain unsolved. The primary outcome measures of this study were the microscopic anatomy of thyroid gland and the level of TSH, T3, T4. Various scientists like Burchard et al., Rajkovic et al., Koyvet et al. assessed the effect of mobile phone radiation on various subject and found the result similar to our study with slight variation.

Conclusion: Lack of ionizing radiation and low energy level emitted from cell phone had initially led to this public perception that mobile phone use was safe, but result obtained from this study showed a significant alteration in TSH, T3 and T4 level.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.036

30

A study of comparative histopathology of coronary, radial, ulnar, epigastric and internal thoracic arteries for assessing suitability in coronary artery bypass grafting

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Introduction: To study the histopathology of coronary, radial, ulnar, epigastric and internal thoracic arteries in order to investigate the cause of their occlusions in coronary bypass grafts.

Materials and methods: One centimetre long specimens were taken from each of these arteries just distal to their commencements from ten cadavers. These tissues were fixed in formalin and blocks were prepared. Histology slides were prepared using routine histological techniques.

Results: We found a correlation between the internal calibers of the ulnar and coronary arteries. Intimal changes and the presence of atheromatous plaque were observed in coronary, radial and ulnar arteries, but not in the internal thoracic artery.

Conclusion: Like coronary arteries and their branches, radial, ulnar and epigastric arteries are muscular arteries and ageing results in thickening of the intima, which becomes fibrotic and duplication of internal elastic lamina. The media becomes fibrous, hypertrophic or atrophic. In contrast, the internal thoracic artery is an elastic artery. Ageing is characterized by loss of elastic laminae of the media and more marked intimal thickening. Long-term patency related to histological characteristics of radial, ulnar and epigastric arteries should be kept in mind by the cardiovascular surgeons in selection of suitable arterial graft

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.037