Results: A significant correlation of sex determination was found with iliac length in age more than 6 months and posterior sciatic notch length in age less than 6 months of intrauterine life.

Conclusion: Sexual dimorphism exists from an early age of intrauterine life and sexing could be established almost up to 100% as male or female by using a single or a combination of various parameters of fetal ilium.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.074

68

Effect of prenatal desvenlafaxine exposure on behavioural alteration in Swiss albino mice

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Introduction: Desvenlafaxine is newer serotonin and nor-adrenaline reuptake inhibitor which is functionally different from other typical antidepressants.

In addition to serotonin and nor-adrenaline reuptake inhibition, it also causes slightly dopamine reuptake inhibition.

Purpose: To check for its deleterious effect in the pregnant women as there are paucity of reports regarding this newer antidepressant.

Methods: Adult female Swiss albino mice weighing between 25 and 30 g were mated with male mice in the ratio of 2:1. Female mice discovered with vaginal plug were given desvenlafaxine via oral gavage in the dose of 80 mg/kg body wt from gestation day 1 to gestation day 6 and day 1 to day 18 of gestation. Control group of mice received water in same dose via same route. These mice were allowed to deliver and subjected to Water Morris behavioural test at the age of 8 weeks.

Result: Water Morris behavioural test was performed to test for the effect of drug on spatial learning and memory. In early session, no significant difference was found in the time taken by offspring of different group to find hidden platform. In further sessions, offspring of group 2 (drug given for day 1 to day 6 of gestation) took less time to reach platform than offspring of 1 and 3.

Conclusion: Above findings suggest that desvenlafaxine interferes with the normal neuronal development and thus affect learning and memory. The degree of degeneration increases as we increase the dose and duration of drug exposure. Other details will be discussed during presentation in conference.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.075

69

Chromosomal aberrations in mental retardation: A preliminary study

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Background: Chromosomal abnormalities that alter developmental gene expression are the most common cause of mental retardation. Approximately 10% of mental retardation cases suffer from chromosomal abnormalities. Telomeric regions of chromosomes are the most gene-rich regions and any deletion or alteration in this region had been reported to account for nearly 2.5% of mental retardation cases, with or without dysmorphic features. Our study focussed on chromosomal aneuploidies and large structural defects in idiopathic mental retardation detected using conventional cytogenetic technique by peripheral blood karyotype. A total of 30 cases of idiopathic mental retardation were referred for genetic analysis to Cytogenetic Lab, Dept of Anatomy, from May 2013 to April 2016. A peripheral blood karyotype was carried out in all patients.

Methods: 5 ml of venous blood was cultured for leucocytes and subsequently karyotyped using standard protocol of Trypsin Giemsa banding. The slides were visualised for metaphase spread under oil immersion and 20 cells were captured in every case for analysis using Cytovision software.

Results: Cytogenetic analysis of peripheral blood of 30 cases of idiopathic mental retardation revealed 02 Down syndrome mosaic males, 01 Down syndrome female with 14/21 translocation, 01 Fragile X Syndrome male and 26 cases with normal karyotype.

Discussion and conclusion: In our study only 04 out of 30 cases of idiopathic mental retardation showed chromosomal anomaly analysed by peripheral blood karyotype. Genetically determined mental retardation aetiology (comprising chromosomal aberrations, single-gene disorders, and other genetic conditions) account for 17–41% of cases, depending on the different techniques of genetic analysis. Karyotype is gold standard investigation for aneuploidies and large structural defects however small deletions and alterations on chromosome are often missed in conventional cytogenetic procedures. Hence it is suggested that newer molecular cytogenetic techniques like microarray and purely molecular techniques like polymerase chain reaction (PCR) be used to diagnose submicroscopic aberrations which account for majority of aetiologically undiagnosed cases of mental retardation.

Conflicts of interest

The author has none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.076

70

Effect of carbamazepine on fetal brain

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Aims and objectives: Carbamazepine is one of the most widely used anti-epileptic drugs among women of child bearing age. This study aims to investigate the morphological and histopathological teratogenic effects of carbamazepine use during pregnancy.

Materials and methods: The healthy pregnant female mice were divided into two groups. The control group received equivalent quantity of distilled water by intraperitoneal route on 7th day of gestation. Second group received 30 mg/kg of carbamazepine by

intraperitoneal route on 7th day of gestation. Fetuses were delivered on the 18th day of gestation by hysterectomy. Each fetus was assessed for histopathological changes of their brain.

Results: Brain of fetal mice showed congestion of pyramidal cells and glial cells with areas of vacuoles. Hippocampus seen with reduced size of molecular layer, granular cell layer and hilus with hydropic degeneration of granular cell layer.

Conclusion: Histopathological changes in brain of fetus are due to carbamazepine administered to the pregnant mice.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.077

71

Gestational age determination in human female foetuses by measurements of hand and foot

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Introduction: Determination of gestational age is important in civil and criminal cases. Though a reasonable assessment of gestational age can be made by measuring physical parameters such as crown-heel length, weight of foetus and by noting morphological features, organ development and appearance of ossification centres, an alternative parameter is desirable in some instances. In this study we directly correlate growth of different foetal hand parameters with gestational age.

Materials and methods: 30 formalin fixed human female foetuses were obtained from Museum of Department of Anatomy, Jawaharlal Nehru Medical College, Aligarh. Foetuses were divided into five groups: Group I: <17 wks, Group II: 17–20 wks, Group III: 21–25 wks, Group IV: 26–30 wks, Group V: >30 wks. We measured the seven parameters in the foetal hand, i.e. length of the hand, breadth of the hand and lengths of the thumb, index finger, middle finger, ring finger and little finger and foot parameters are length and breadth of foot, length of great toe and 2nd, 3rd, 4th, 5th toes, were measured using vernier callipers.

Observation: It is observe that foetal hand, thumb, middle finger and foetal foot, great toe and 3rd toe lengths are significantly ($p < 0.05$) correlated with gestational age.

Result: It was concluded tthese parameters could be utilized to estimate gestational age. This is justifiable useful in the medico legal cases in which only hand and foot or part of it is available for estimation of gestational age.

Conflicts of interest

The authors have none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.078

72

Second branchial cleft anomaly – A rare clinical presentation

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Background/introduction: Branchial arch anomalies account for 20% of congenital head and neck lesions. Second branchial cleft anomalies account for 90% of the developmental abnormalities of the branchial apparatus. But, complete second arch fistulae are rare and comprise 2% of all branchial anomalies. Second branchial cleft fistulae pass deep to second arch structure and over third arch structures; thus closely associated with major neuro-vascular structures of the neck. The present study highlights the importance of their recognition intra-operatively to prevent injuries to vital neck structures as well as reiterate the importance of study of developmental anatomy and a need to find the surgical proof for the same.

Materials and methods: A case of complete second branchial cleft fistula was detected in ENT outpatient department of our institution. The fistula was surgically excised by the combined "transcervical" and "transoral" approach. A video demonstration of internal opening as well as stages of safe surgical management is being highlighted in this study.

Result: The length of the excised fistula was 10 cm. The fistula tract extended from lower neck to hyoid region and went up through bifurcation of carotid artery and traversed floor of mouth to reach its internal opening. No post-operative complications. Six months follow up showed no recurrence.

Conclusion: Accurate knowledge of surgical anatomy relating to development of neck from branchial arches and its anomalies is essential to perform surgeries in head and neck region to prevent inadvertent vascular or nerve injury.

Conflicts of interest

The author has none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.079

73

Fate of renal tubule in human fetuses

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Introduction: Various congenital malformation have been reported earlier, some of them fatal. Study of developing tubules gives important clues.

Aim: To study morphological development of renal tubules.

Materials and methods: The study was carried out in 30 human fetuses of different age ranging between 3 and 38 weeks. Kidney directed fixed in 10% formalin, processed and stained with haemotoxylin and eosin.

Result and conclusion: The smallest glomeruli were observed in most superficial cortex and largest in the juxtamedullary zone.

Conflicts of interest

The author has none to declare.

http://dx.doi.org/10.1016/j.jasi.2017.08.080