72

Ultrastructural features of enteric ganglia in human foetuses

B. Subhash*, S. Saba, J.A. Quadri, K. Harisha, S. Singh, T.C. Nag, A. Shariff

Department of Anatomy, All India Institute Of Medical Sciences, New Delhi, India

Introduction: The Neural Crest derived Enteric Nervous System (ENS) is the intrinsic innervation of gastro intestinal tract (GIT) which consists of neurons and enteric glial cells in the myenteric ganglia. Because of its autonomous control over the GIT, it is also called the "second brain"[1]. The ENS consists mainly of submucosal and myenteric plexuses. Clinical studies revealed that congenital malformations of the ENS seriously affect the gut motility, gastric acid secretion, and water and electrolyte transport[2]. Scarcity of existing literature on the development of myenteric plexus in different segments of the GIT, which are sites of various diseases, motivated this study.

Aim: To determine the ultrastructural features of the myenteric plexus of foregut (oesophagus), midgut (ascending colon) and hindgut (descending colon) with increasing age of gestation (12–30 weeks).

Materials and methods: Tissue samples from Maternal Termination of pregnancy (aborted) foetuses n = 5 aged 12–30 weeks of gestation (WG) were processed and examined under theelectron microscope Tecnai 12 TEM in AIIMS.

Observations: The neuropil appeared lowest in the oesophagus compared to the ascending and descending colon. The size of the neurons and appearance of neuronal processes within the myenteric ganglia increased remarkably with increasing gestational age.

Conclusion: The neuronal cells were more dense in colon compared to oesophagus was independent of gestational age. Neuronal processes were increased with increasing gestation age in both oesophagus and colon.

Significance: The insight about the development of the innervation in different segments of the gut with increasing gestation age may help in understanding the pathophysiology of various congenital disorders affecting ENS.

Conflicts of interest

The authors have none to declare.

https://doi.org/10.1016/j.jasi.2018.06.226

73

Histogenesis of fetal cerebellar cortex

C. Divya*, Chandni Gupta, Sneha Guruprasad Kalthur

Kasturba Medical College Manipal, Karnataka, India

Background: Currently, there's minimal research regarding the histogenesis of cerebellum in foetus of various trimesters. In fetus, external granular layer is the precursor of purkinje cell and internal granular cell layer. The genetic conditions ataxia telangiectasia and Niemann Pick disease type C, as well as cerebellar essential tremor; involve the progressive loss of Purkinje cells.

Aims and objectives: The aim is to study the gradual development of various layers of the cerebellar cortex in the aborted fetuses, with emphasis on origin and development of the Purkinje cell layer.

The cerebellar cortex contains three well-defined layers namely,

1. *Thick granular layer*: It is densely packed with granule cells, along with interneurons, mainly Golgi cells.
2. *The Purkinje layer*: A narrow zone that contains the cell bodies of Purkinje cells and Bergmann glial cells.
3. *The molecular layer*: It contains the flattened dendritic trees of Purkinje cells, along with the huge array of parallel fibers penetrating the Purkinje cell dendritic trees at right.

Materials and methods: The study will be carried on 30 fetuses (both males and females) without unknown anomaly.

Gestational age:
Group 1: ≤12weeks
Group 2: 13–24 weeks
Group 3: ≥24 weeks

Dissected fetal cerebellum specimens will be subjected to routine histological processing, and stained with hematoxylin and eosin.

Results: Study is under progress & the results will be presented during the conference.

Conclusion: We get to know the normal development of cerebellum in the fetus & it facilitates in the pathological diagnosis of intrauterine cerebellar changes.

Conflicts of interest

The authors have none to declare.

https://doi.org/10.1016/j.jasi.2018.06.227

74

X-box binding protein in Ire1 arm of endoplasmic reticulum stress is upregulated by Sflt-1 in trophoblast cells: an in vitro study

Mochan Sankat*, Bhatla Neerja, Luthra kalpana, Sharma Arundhati, Gupta Sunil, Saxena Shobhit, Arora Pallavi, Rani Neerja, Dhingra Renu

All India Institute of Medical Sciences (AIIMS), New Delhi, India

ER is a prime contributor to proteostasis of the cellular environment. To cope with endoplasmic reticulum stress (ER stress), cells activate specific signaling response collectively known as unfolded protein response (UPR). UPR may recover the homeostasis or trigger apoptosis depending on the extent of damage of cell. Oligomerisation of IRE1 and subsequent formation of stable and active transcription factor XBP1 controls genes involved in protein folding and ER associated degradation (ERAD). Placental ER stress is already known in Preeclamptic placentae with imbalance between angiogenic (VEGF) and antiangiogenic factors (sVEGFR1/sFlt-1). However the role of sFlt-1 in regulating ER stress is not known.

Objectives: To study the role of sFlt-1 in the IRE1 arm (activation of x Box binding protein) of the ER stress.

Methods: Blood samples from normotensive (n = 40) and preeclampsia (n = 40) pregnancies were collected at the Department of Obstetrics & Gynaecology, AIIMS (New Delhi, India) with approval from Institute Ethics Committee. The s-Flt-1 level was measured by sandwich ELISA. BeWo cells were incubated with these sera and activation of XBP1 was detected by immunofluorescence, Western blot and RT-PCR.

Results: Maternal levels of sFlt-1 were higher ($p < 0.01$) in serum from preeclampsia compared with normal pregnancies. Protein expression of XBP1 was higher ($p < 0.05$) in BeWo cells exposed to sera from preeclampsia as compared to normal pregnancies.