doi:10.25143/rsu-balt-morf-11-meeting

11th BALTIC MORPHOLOGY MEETING
NOVEMBER 13-15, 2024
ANATOMICUM, RIGA

11th Baltic Morphology Meeting

ABSTRACT BOOK

November 13–15, 2024
Rīga, Latvia

RĪGA STRADIŅŠ UNIVERSITY

Baltic Morphology 11th Meeting [November 13–15, 2024]: Abstract Book. – Rīga: Rīga Stradiņš University, 2024. – 98 p., including Author Index.
https://doi.org/10.25143/rsu-balt-morf-11-meeting

Chair of the Meeting
Professor, *Dr. med.*, *Dr. habil. med.* Māra Pilmane

All abstracts reviewed
Abstracts do appear in the abstract book in accordance to their presentation order
(not in the alphabetical order)

Authors are responsible for the content of their abstracts

RSU IPD No. IPD-5115

ISBN 978-9934-618-58-1 (printed edition)
ISBN 978-9934-618-59-8 (electronic edition, online)

Role of maternal undernutrition: comparison of histomorphological changes in visceral organs and retinas of two-generation rat offspring

Šimkūnaitė-Rizgelienė Renata [1], Laurinavičiūtė Guoda [1], Reivytytė Rosita [2], Virbauskytė Viktorija [2], Semenkovaite Justina [2], Šlažaitė Gerda [2], Strelčenko Jekaterina [2], Vosyliūtė Rūta [3], Žalgevičienė Violeta [3], Čepulienė Ramune [3], Bartuškienė Violeta [3], Tutkuvienė Janina [3]

[1] *Department of Anatomy, Histology and Anthropology, Faculty of Medicine, Vilnius University, Lithuania*
[2] *Faculty of Medicine, Vilnius University, Lithuania*
[3] *Department of Anatomy, Histology and Anthropology, Institute of Biomedical Sciences, Faculty of Medicine, Vilnius University, Lithuania*

Objectives. This study aimed to evaluate the effects of maternal undernutrition on the histomorphology of the liver, pancreas, thyroid gland, and retina in first (F1) and second (F2) generation rat offspring.

Materials and methods. Two generations of offspring were studied. Mothers were either 50% food-restricted before pregnancy (1EG) or before and during pregnancy (2EG). The control group (CG), as well as the offspring, was fed normally. Paraffin sections of the pancreas, liver, thyroid gland, and retina were stained with H&E, histomorphological parameters were evaluated and measured using CellSens software. Cryosections of eyes were stained with glial fibrillary acidic protein, ionized calcium-binding adaptor molecule 1, and RNA-binding protein, macroglia, microglia, and ganglion cells were evaluated using a digital tool.

Results. More pronounced hepatic steatosis and ballooning were observed in both F1 and F2 offspring, with 1EG showing more severe steatosis and 2EG a higher ballooning index. These changes were less pronounced in F2.

An increase in exocrine pancreas vacuolization was detected in F1 male 2EG and F2 male 1EG compared to CG, with a significant decrease in F2 male 2EG. Female EGs showed increased vacuolization in F2 compared to F1. There was no significant change in the surface area of Langerhans islets, except for a size increase in F1 male 1EG.

Thyroid follicles were fewer in F1 compared to F2, with larger follicular areas and cell height in F1.

Signs of fibrosis and inflammation were more evident in F1 offspring.

F2 of the nutritionally restricted groups showed greater photoreceptor layer atrophy, higher Müller cell activity, and more microglial cells. There was no clear influence on the ganglion cell layer.

Conclusions. Maternal undernutrition influences the histomorphology of offspring, with less pronounced changes in F2. Visceral organs may exhibit greater plasticity and adaptability, while the eyes appear more protected against maternal malnutrition effects.