PhD thesis of mgr A.Špolcová

Impact of different types of antidiabetic interventions on the development of neurodegenerative changes in brains of diabetic mice and rats

PhD thesis summarize results of three full-length papers published in international journals with very good impact factor.

Presented thesis have classical divisions – Introduction, Aims, Materials and Methods, Results, Discussion, Conclusions and References. Introduction reviews on 25 pages Alzheimer disease and risk factors for its development as well as connection with metabolic diseases, mostly diabetes mellitus of the second type. Detailed review of insulin-sensitizing/anorexigenic compounds is given. Three aims of the thesis correspond with the three papers mentioned above.

Materials and Methods describe on ten pages shortly all methods used with many references to the published papers.

Results give a survey of data with numerous illustrations by graphs and original blots. Unfortunately only one illustration of c-fos and another one of double immunohistochemical staining of phosphorylation of Tau protein are presented. With neurodegenerative chages in the title I would expect more morphological data and illustrations.

Twelve pages of Discussion again shortly compare the author's data with literary data. All parts of results are mentioned and the last part of discussion containd also some perspectives.

One page of conclusions corresponds with the three papers – three conclusions are conclusions of the published papers.

Neurodegenerative changes are usually taken as a morphological damage. According to the title of the thesis I expected more morphology therefore I would like to ask if some basic histology (at least Nissl stained slices) was performed followed by quantification of possible loss of neurons.

My second question is connected with behavior: Am I right that the reason for using only Y maze was in the literature and why the function of the nervous system was not studied by more than one method?

And finally why the hippocampus was chosen for analysis?

The thesis document the author's ability to collect literature, plan and perform experiments and compare own results with published data. Therefore I propose to award mgr.Andrea Špolcová after a successful defense with a title PhD according to the rules of postgradual studies.

Prague, September 1, 2015

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