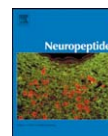


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Diabetes mellitus influences the expression of NPY and VEGF in neurons of rat trigeminal ganglion

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ABSTRACT

Background: Diabetes mellitus (DM) influences the trigeminal nerve function by changing the pain response and transduction of the orofacial sensory pathways. It affects the inflammatory response via neuropeptide Y (NPY) and vascular endothelial growth factor (VEGF), which could potentially have a relevant role in the pathophysiology of diabetic neuropathy. The aim was to investigate expression of VEGF and NPY in subpopulations of trigeminal ganglion (TG) neurons in rat models of early DM1 and DM2.

Methods: DM1 model was induced by an intraperitoneal (i.p.) injection of streptozotocin (STZ) (55 mg/kg). DM2 rats were fed with a high fat diet (HFD) for two weeks and then received 35 mg/kg of STZ i.p. Two weeks and 2 months after the STZ-diabetes induction, rats were sacrificed and TG was immunohistochemically analyzed for detection of VEGF and NPY expression, and also double immunofluorescence labeling with isolectin (IB4) was completed.

Results: An increased percentage of NPY+ neurons was observed 2 weeks after DM1 and 2 months post DM2 induction. NPY immunoreactivity was restricted to IB4-negative small-diameter and IB4+ neurons. Two weeks post induction, DM1 rats showed an increased ratio

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