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Poster presentation

Neuronal morphology of nucleus accumbens-drug addicted brain region

J Tosevski*[1], S Malobabic[2], A Orologas[3], J Mojsilovic-Petrovic[4], M Sazdanovic[1] and C Alexopulos[5]

Address: [1]Institute of Anatomy, School of Medicine Kragujevac, Svetozara Markovica 69, 34000 Kragujevac, Serbia and Montenegro, [2]Institute of Anatomy, School of Medicine, Belgrade, Serbia and Montenegro, [3]University department of neurology, Aristotle University of Thessaloniki, Greece, [4]Institute of Biological Sciences, National Research Council, Ottawa, Canada and [5]Clinic of Neurology, School of Medicine, Kragujevac, Serbia and Montenegro

* Corresponding author

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Background

Nucleus accumbens is highly drug addicted brain region, related with many others.

Material and methods

The morphology of neurons in the nucleus accumbens was studied on frontal and sagital sections of 15 human brains by Golgi method.

Results

We classified these neurons in the human nucleus accumbens, according to their morphology and size into four types: Type I a – fusiform neurons, Type I b subtype – fusiform neurons with lateral dendrite, Type II multipolar neurons, Type III-piriform neurons and Type IV pyramidal-like neuron.

Discussion

Two regions of human nucleus accumbens could be clearly recognized on Golgi preparations each containing different predominant neuronal types. Central part of nucleus accumbens, core, had a low density of impregnated neurons with predominant type IV pyramidal-like neurons enriched with spines on secondary branches. Contrary to the core, peripheral regions, shell of nucleus, had a high density of impregnated neurons predominantly contained types I (both subtypes of fusiform), and type III (piriform) neurons, which all were rich in spines on secondary and third dendrite branches. Our results indicated great morphological variability of human nucleus accumbens neurons and their phylogenetically developing potential. This suggests further investigations and clarifying clinical significance of this important brain region in drug addiction.