

Poster presentation

## **Dendrodendritic contact and dendritic bundles in human basolateral amygdala – a Golgi study**

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### **Background**

It is widely accepted that the amygdala are the neuroanatomical middle point of the fear stimuli, which contains the essential circuitry that encodes fear memories, and with the enormous influence on emotional processes and learning. Better understanding of the morphologic characteristics and complexity of the dendritic organization of amygdala as neural substrates of complex functional properties is needed.

### **Materials and methods**

Our study examined morphologic characteristics of the dendrites of basolateral amygdaloid neurons using Golgi method. The analysis of the dendritic branches in basolateral human amygdala pointed out the presence of dendritic bundles in form of intranuclear fascicular dendritic arrangement with their predomination in the parvocellular division of the basal nucleus and paralaminar nucleus.

### **Results**

The most important finding in this study is presence of dendrodendritic contact between certain cell types in human basolateral amygdala. The more frequent form of dendrodendritic contact was established between the large bipolar cells, as the representative of the nonpyramidal cells and the double apical cells as the representative of the modified pyramidal cells. Additionally, some of dendrodendritic contacts are at the same time configured on both apical dendrites. Dendrodendritic contacts are of various complexities, ranging from single contact between two dendrites, to multiple contacts between three, four or more dendrites that form the dendritic synaptic glomerulus.

### **Discussion**

Morphological complexity of the human basolateral amygdala with the presence of numerous neuronal types, intranuclear dendritic bundles and dendrodendritic contacts, implies their functional complexity in the cognitive-emotional processes.