

Comparative study of the red nucleus cytoarchitecture in cats with neonatal or adult hemicerebellectomy

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In this study we investigated the red nucleus (RN) cytoarchitecture in cats with hemicerebellectomy performed at a neonatal or an adult age (HcbK and HcbA, respectively). Compared to intact control cats, the volume of the RN contralateral to the lesion decreased by 47.6% in the HcbK ($p < 0.04$), and by 35.2% in the HcbA ($p < 0.04$). On the side of the lesion, the RN volume decreased by 27.2% in HcbK ($p < 0.04$) and by 14.8% in HcbA ($p > 0.05$). For further analysis, cells in the RN were classified in three categories according to their size: small glial-like cells, medium-size and large-size neurons. Medium-size and large-neuron packing density did not change in any of the lesioned groups compared to intact cats, while density of glial-like cells increased bilaterally in the HcbA ($p < 0.0001$ contralaterally and $p < 0.0001$ to $p < 0.001$ ipsilaterally) but not in the HcbK group. The body size of the large neurons was also measured. In the contralateral RN, size of the large neurons decreased