

Turkish Journal of Medical Sciences

Turkish Journal

of

Medical Sciences



NADPH-Diaphorase-Reactive Neurons in Rat Basal Ganglia

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Abstract: NADPH-d reaction was performed on nine male Sprague-Dawley rats and morphometry of NADPH-d(+) cells was investigated in caudate-putamen, globus pallidus and ventral pallidum. In caudate-putamen we observed intensely stained NADPH-d (+) cells. Maximum diameter and minimum diameters of the NADPH-d (+) cells in caudate-putamen was measured as $19.19 \pm 0.04 \mu\text{m}$ and $10.42 \pm 0.12 \mu\text{m}$, consequently. In globus pallidus, moderately stained NADPH-d (+) cells were observed. We measured the maximum and minimum diameters of the NADPH-d (+) cells as $19.93 \pm 0.24 \mu\text{m}$ and $10.42 \pm 0.12 \mu\text{m}$, consequently. In ventral pallidum, medium-sized, moderately stained cells were present. Maximum and minimum diameters of the NADPH-d (+) cells in ventral pallidum was $19.19 \pm 0.04 \mu\text{m}$ and $12.40 \pm 0.2 \mu\text{m}$, consequently. NADPH-d (+) cells in caudate-putamen, globus pallidus and ventral pallidum were mostly multipolar in shape. Basal ganglia have recently been suggested to have a role in nociceptive processing. Based on the role of nitric oxide in nociception and NADPH-d which is a form of nitric oxide synthase, the positive reaction in these nuclei is proposed to have a role in nociception in basal ganglia.

Key Words: caudate-putamen, globus pallidus, pallidum, NADPH-diaphorase.

Turk J Med Sci 1999; **29**(4): 379-384.

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