Effects of some antioxidative aporphine derivatives on striatal dopaminergic transmission and on MPTP-induced striatal dopamine depletion in B6CBA mice

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(S)-(+)-boldine, an aporphine alkaloid displaying antioxidative and dopaminergic properties, and six of its derivatives (glaucine, 3-bromoboldine, 3-iodoboldine, 8-aminoboldine, 8-nitrosoboldine and 2,9-O,O?-dipivaloylboldine) were tested for these properties in comparison with their parent compound. All the tested compounds displayed in vitro antioxidative properties equal to or slightly weaker than those of boldine, and equal to or stronger than (±)-6-hydroxy-2,5,7,8,-tetramethylchromane-2-carboxylic acid (Trolox®), a water-soluble vitamin E analogue, used as a reference compound. All the aporphine compounds tested displaced [3H]SCH 23390 and [3H]raclopride from their specific binding sites in rat striatum. When tested on dopamine (DA) metabolism in the striatum of B6CBA mice, all the compounds, except 8-aminoboldine, increased striatal levels of DOPAC and HVA, and the HVA/DA ratio, indicating that they cross the blood-brain barrier and that they seem to act as dopamine antagonists i