P03-374

DISTURBANCES OF FUNCTIONING OF BENZODIAZEPINE RECEPTORS ON PLATELETS IN ALCOHOLIC PATIENTS

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Recent observations on the steroid synthetic capability within the brain open the possibility that benzodiazepines may influence steroid synthesis in nervous tissue through interactions with peripheral-type benzodiazepine recognition sites, which are highly expressed in steroidogenic cells and associated with the outer mitochondrial membrane.

Methods: For the investigation well be study binding of 3H-PK11195 with mitochondrial membranes prepared from different brain regions and the binding of 3H-PK 11195 with peripheral blood trombocytes were separated from fresh blood.

Results: A comparative studies of 3H-PK11195 binding to PBR from brain cortex, caudatus and cerebellum in alcoholics (A) and non-alcoholics (NA) post-mortem showed that properties of PBR are not identical in different brain regions. The largest density of binding sites was found in brain cortex, the less one - in cerebellum and in nucleus caudatus (in A and in NA). The highest binding affinity for the PBR was found in nucleus caudatus than for PBR in brain cortex and in cerebellum (in A and in NA). Study of the properties of PBR in NA (non-alcoholic) and A (alcoholic) in different brain structures showed the reduction of the affinity and increasing of PBR binding sites in A. We found similar alterations of PBR in peripheral blood trombocytes that suggests close connection between central and peripheral benzodiazepine receptor systems

Conclusion: Complex central actions of ethanol could include effects on neurosteroid production mediated through peripheral types of benzodiazepine receptors located in mitochondrial membranes in nervous tissue and plasmatic membrane of trombocytes.

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