P17: PHARMACOLOGICAL CHARACTERIZATION OF THE NMDA RECEPTOR: FOCUS ON NR2B SUBTYPE IN THE HUMAN PLATELET

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ABSTRACT

[^{3}H] MK-801 was used to investigate *N*- methyl-D- aspartate (NMDA) receptor in the rat brain and human platelets. The study showed that the ligand binds with high affinity (Kd of 1.3 nM in rat brain membrane and Kd of 27.9 nM in human platelet membrane), but the rank order of binding affinities of unlabelled NMDA receptor channel blockers on human platelets (ifenprodil> dextrophan> memantine>MK801>ketamine) did not parallel the rank order of their affinities in binding to rat brain membranes (MK801>memantine>ifenprodil>ketamine> dextrophan). This result indicated that the NMDA receptor on platelets might be different in receptor subtype. By using platelet aggregation study, the ifenprodil, which is a selective polyamine site antagonist and specific for channels containing the NR2B subunit could inhibit platelet aggregation induced by ADP. Ifenprodil was used to bind NR2B subtype in rat brain and human platelets. It can bind NR2B subtype with high affinity (IC_{50} = 1.64 uM and 0.1 mM in rat brain and human platelet, respectively). This may suggest that the application of this finding may contradict the predictive value of NR2B subtype in brain and human platelet in drug-addicted patient.

Key Words: NMDA receptor, NR2B subtype, ifenprodil, rat brain, human platelet