Chapter V

Conclusion

The present studies demonstrated a broad spectrum of anticonvulsant activity of VPU in MES, PTZ and bicuculline tests. In comparison to VPA, VPU was equipotent in bicuculline test but exerted a higher potency in MES and PTZ tests. The ED_{50} of VPU was 66 and 57 mg/kg B.W. in MES and PTZ tests respectively while they are 242 and 95 mg/kg B.W. for VPA. Based on the high LD_{50}, 1553 and 838 mg/kg B.W. for VPU and VPA respectively, and rather low side effects as predicted by a depression of locomotor activity and potentiation of barbiturate sleeping time, VPU appears to be relevant than VPA.

Microdialysis studies on cortex of pentobarbital anesthetized rat reveal a significant and none selective depression of cortical excitatory, aspartate and glutamate, as well as inhibitory, glycine and GABA, amino acid neurotransmitters. However, the depression was most prominent on excitatory neurotransmitter, glutamate, while the least was observed on glycine level. A stronger synergistic effect of VPU with pentobarbital may contribute to the non selective depressant observed.

According to the results observed in the present studies, VPU has demonstrated a good prospect of being a potent broad spectrum antiepileptic drug with higher margin of safety and lower side effects. Extensive studies on its precise mechanism of actions and a full spectrum of pharmacological action including toxicity have to be accomplished before a definite conclusion is reached.