

## Stress-induced changes of sleep patten and mechanism of its generation

○Ranji Cui, Katsuya Suemaru, Bingjin Li, Hiroaki Araki.

Department of Clinical Pharmacology and Pharmacy, Neuroscience, Ehime University  
Graduate School of Medicine

A number of evidences suggest that stress is strongly implicated in the regulation of sleep, however the exact relationship between stress and sleep is still unclear. In the present study, the effect of physical and psychological stress induced by communication box on sleep patten was investigated in rats. Physical stress and psychological stress showed almost opposite effect on the sleep patterns; psychological stress enhanced total REM sleep without effect on non-REM sleep, whereas physical stress inhibited total REM sleep and non-REM sleep.

Strong evidences showed that sleep is closely related to all kinds of neurotransmitters, such as ACh, GABA and so on, in addition, hypothalamic-pituitary-adrenal (HPA) axis also plays an important role in these abnormal sleep patterns induced by stress. Therefore, based on the effect of neurotransmitters and HPA axis, the possible mechanisms of abnormal sleep by physical stress and psychological stress are also discussed.