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Poster Sessions

Involvement of intracerebral hemorrhage-associated depression and increase of indoleamine 2,3-dioxygenase

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Five-hydroxytryptamine (5-HT) is made from L-tryptophan and known to play some roles in depressive states. Indoleamine 2, 3-dioxygenase (IDO) is the rate-limiting enzyme in the kynurenine pathway, converting tryptophan to kynurenine. We investigated the role of IDO in the intracerebral hemorrhage (ICH)-associated depression using an *in vivo* mouse model microinjected collagenase type VII into the striatum. IDO mRNA transiently increased at 3 days after ICH and was continuously high until day 21. IDO was expressed on 5-HTergic neurons and its protein level and activity increased 3 days after ICH. The 5-HT level decreased 3 days after ICH, which was reversed by the s.c. injection of 1-methyl tryptophan (1-MT), an IDO inhibitor. Taken together, the IDO increase was suggested to contribute to the down-regulation of 5-HT after ICH. Next, we investigated the mouse behavior relating to the depression. The immobility time of ICH mice was prolonged in the forced swim test, and the time was reversed by 1-MT at day 14. These results suggested that the down-regulation of 5-HT level due to the IDO increase after ICH is involved in the depression by the decrease of the stress tolerance.