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Cognitive Disorder as a Predisposing Factor for Mental Depression

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There is a strong link between cognitive impairment and depression, but,it is not clear whether cognitive impairment may 'cause' depression or not. Therefore, this study examined the effect of cognitive impairment induced by permanent occlusion of common carotids , (2VO), on induction of chronic unpredictable stress (CUS) depression. Male Sprague-Dawley rats underwent 2VO or sham surgery. 60 days after 2VO, cognitive function was tested by the radial arm maze (RAM).All animals were randomly ,divided into two subgroups:stressed and non-stressed.The stressed subgroups assigned to undergo 21 days of CUS. One week after the last stressor, depressive-like behaviors was assessed by the forced swim test (FST). Blood amino acid levels (glutamate ,glutamine and glycine) were measured by high performance liquid chromatography (HPLC), plasma proinflammatory cytokine (interleukin 6) by enzyme-linked immunosorbent assay (ELISA) and CA1 neuronal damage by Nissl staining. 2VO surgery prior to CUS increased depressive-like behavior in 2VO+CUS group compared with rats exposed to CUS only (P=0.047). CUS and 2VO increased the plasma levels of glutamate, glycine and IL-6 and caused CA1 neuronal cell death. In addition, 2VO surgery before stress induction, intensified the effect of stress on IL- 6 (p=0.04 vs CUS), glutamate (p=0.019 vs CUS) and glycine (p=0.018 vs CUS) levels. Our findings showed that 2VO, as a widely-used animal model for induction of cognitive impairment, can induce degrees of biochemical and histological changes like what is seen in stressed animals, thus may, by itself, predispose the people to depression after stress exposure.we suggest that, ***primary*** cognitive impairment predispose depression.

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