

Neurochemistry immune systems interaction in depression

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Immune Neurochemistry Systems Interaction In Depression

Statements

1. Depression is a psychiatric disorder in which neurotransmitters, endocrine and immune systems are involved.
2. Immune system abnormalities that enhance IDO (indoleamine 2,3 dioxygenase) enzyme which degrades tryptophan and in turn reduces the serotonin availability in the brain may result in depressed mood, and long term imbalance in the neuroprotective and neurodegenerative tryptophan breakdown metabolites may result in recurrent or chronic depression.
3. There is an increase in Th1 cytokine level and Th1/Th2 ratio in the depressed patients compared to normal controls.
4. The increase in Th1 or Th1/Th2 ratio in the depressed patients shift back to the direction of 'normal' state after the antidepressant treatment and it coincides with increase in Th3 or regulatory cytokine TGF β 1.
5. The proinflammatory cytokine, IFN α , induces depressive-like behaviour which is associated with both peripheral and central cytokine changes in the rats and both changes are prevented by pre-treatment with selective serotonin reuptake inhibitor.
6. The proinflammatory cytokine, IFN α , induces the reduction in astrocyte density in hippocampus area of the brain in the rats which most probably reflects the low neuroprotection and this defect could not fully be prevented by pre-treatment with selective serotonin reuptake inhibitor.
7. Treatment with anti-inflammatory medication, cyclooxygenase (COX) 2 inhibitor, celecoxib, could correct the central pro-inflammatory cytokine changes and the behavioural changes in rat model of depression.
8. The low plasma neuroprotective kynurenic acid and neuroprotective ratio of the tryptophan breakdown pathway in depressed patients compared to their normal controls indicate that there is impaired neuroprotection in depression in terms of tryptophan breakdown pathway.
9. The slight increase in neuroprotective kynurenic acid in newly diagnosed depressed patients but not in depressed patients with repeated depressed episodes at the time of clinical recovery after antidepressants treatment indicates that there is impaired neuroprotection with recurrence in depression despite of antidepressants treatment.
10. Depression is a disease of mind which is induced by the imbalance in immune system that reacts with neurochemistry systems and in turn induces impaired neuroprotection.