DISCUSS THE ROLE OF NEURAL AND HORMONAL MECHANISMS IN HUMAN AGGRESSION

Neurotransmitters are chemicals that enable impulses within the brain to be transmitted from one area of the brain to another. Serotonin is thought to reduce aggression by inhibiting responses to emotional stimuli that might otherwise lead to an aggressive response. Low serotonin in the brain has been associated with an increased susceptibility to impulsive behaviour, aggression and even violent suicide. A meta-analysis found that serotonin depletion leads to impulsive behaviour which can cause aggression. The second neurotransmitter is dopamine but the dopamine-aggression link is not as well established as with serotonin. Increases in dopamine activity via amphetamines have been associated with more aggression, and antipsychotics reducing dopamine activity have been shown to reduce aggression in violent delinquents.

Commentary on serotonin includes evidence from non-human studies. Support for the importance of serotonin in aggressive behaviour was found in a study of vervet monkeys since individuals fed on diets increasing serotonin in the brain showed lower aggression and vice versa suggesting that aggression can be attributed to serotonin levels. Additionally, selectively bred animals for domestication show a corresponding increase over generations in docile temperaments and concentrations of serotonin. Commentary for serotonin also looks at evidence from antidepressants since if low levels of serotonin are associated with more aggression; drugs which raise serotonin levels should therefore lower aggression. This has been shown to be true since drugs which raise serotonin levels tend to reduce irritability and aggression.

Commentary on dopamine includes that although there is inconclusive evidence on the causal role of dopamine in aggression, new research suggests that it might be a consequence instead, for example, a mice study showed a reward pathway in the brain becomes engaged in response to an aggressive event and that dopamine is involved as a positive reinforcer in this pathway. This suggests that individuals will be aggressive since there is a rewarding sensation.

Hormonal mechanisms affecting human aggression include testosterone. Testosterone is an androgen thought to influence aggression from young adulthood onwards due to its