ATTACHMENT, LOVE, EMPATHY, ALTRUISM: NEUROBIOLOGICAL ROOTS OF GOOD

Summary

The paper discusses selected examples of classical achievements and recent advances in the field of experimental analysis of neurobiological roots of phenomena involved in the formation and maintenance of friendly relationships, attraction, attachment and cooperation among animals and humans. The discussion is focused on experimental data obtained by means of a wide spectrum of modern research methods including the use of transgenic animals, neuroimaging techniques such as positron emission tomography (PET) and functional magnetic resonance imaging (fMRI), and transcranial magnetic stimulation (TMS). A particular stress is laid on neurochemical basis of pair bonding and mother-young bonding, on the role of brain reward system in the phenomena of attachment, romantic love and maternal love and on complex interrelationships between social reward and reward related to drugs of abuse. Brain mechanisms underlying empathy and various forms of altruistic behaviour (including altruistic punishment) are also briefly discussed, with a particular stress laid on the role of brain reward system and cognitive processes in the control of these phenomena.