

INDIVIDUAL AGING PATTERNS OF THE HYPOTHALAMIC-PITUITARY-ADRENAL AXIS IN NONHUMAN PRIMATES

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The purpose was to investigate age-related changes in functioning of the hypothalamic-pituitary-adrenal (HPA) axis of female rhesus monkeys that differ in their adaptive behavior. Plasma cortisol (F) and dehydroepiandrosterone sulfate (DHEAS) concentrations in basal conditions (at 0900 and 2100 hours of day) and under acute psycho-emotional stress (2-hour moderate restraint) were evaluated in blood plasma of young (6-8 years) and old (20-27 years) female rhesus monkeys with various type of adaptive behavior (aggressive, depression-like, and average type). We have found that the age-related changes in the HPA axis of monkeys with depression-like behavior were accompanied by the maximal absolute and relative hypercortisolemia in the basal conditions as well as in the stress conditions. Moreover, the young aggressive monkeys in comparison with the young monkeys of other behavior groups, demonstrated the higher levels of DHEAS and the minimal molar ratios between F and DHEAS plasma levels. For the old animals with aggressive behavior these inter-group differences were not exhibited. The minimal age-related changes in the HPA axis have been revealed for the monkeys with average type behavior. Thus, our results testify that the age-related disturbances of the HPA axis exhibit individual features associated with the peculiarities of the adaptive behavior of animals.

Keywords: Hypothalamic-pituitary-adrenal axis; Stress; Types of adaptive behavior; Aging; *Macaca mulatta*