GERM CELL APOPTOSIS IN RAT TESTIS IN EXPERIMENTAL HYPERPROLACTINEMIA: A MORPHOLOGICAL AND HISTOCHEMICAL STUDY

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The aim of this study was to use light and electron microscopy to examine apoptotic cells in the seminiferous epithelium in rats with hyperprolactinemia. Studies were performed on male sexually mature 3 and 7 month old rats of the Wistar strain. The rats in the two experimental groups (n=8) received metoclopramide (MCP) i.p. in a dose of 2.2mg/kg body mass, over 14 days (the time of the rat seminiferous epithelium cycle) to induce hyperprolactinemia. The prolactin (PRL) and testosterone (T) concentrations were measured in the serum using radioimmunoassay kits (Amersham, UK, and Farmos Diagnostika, Finland respectively). Routine procedure was used to prepare the testes for electron microscopy. The TUNEL method (ApopDETEK, and \textit{in situ} detection system horseradish peroxidase – DAB, Enzo Diagnostics, USA) was used for the histochemical detection of apoptotic germ cells in the seminiferous epithelium (\textit{in situ} localization of fragmented DNA). For each animal, at least 100 tubule cross sections per slide were scored using light microscopy. The percentages of tubule sections with apoptotic germ cells and the number of apoptotic germ cells in the particular stage groups were analyzed statistically. Hyperprolactinemia was manifested by an elevated PRL concentration in the serum in both experimental groups and by lower concentrations of T as compared to the control groups. We detected an increased percentage of seminiferous tubules containing cells with nuclear DNA fragmentation (cells with a brown product in the TUNEL reaction) and an increased number of these cells in rats with hyperprolactinemia. In conclusion, we observed stage-specific germ cell apoptosis.