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Title of thesis:

Effect of Livergol on *In Vitro* Fertilization Following Experimental Cholestasis Induction in Mature Male Rats

Summary:

Cholestasis, a multifaceted complication resulting from an imbalance between bile production and secretion, occurs in many diseases and can lead to further damage. This study aimed to investigate effect of livergol on in vitro fertilization following experimental cholestasis induction in mature male rats. Twenty adult male rats of similar age and weight were randomly divided into four groups. Group 1 consisted of five healthy rats kept as controls without treatment until the end of the study. In Group 2 (sham), laparotomy and ductal manipulation without ligature were performed. In Group 3 (experimental cholestasis), two ligatures were placed a few millimeters apart in the common bile duct, and the section between the ligatures was excised. In Group 4 (experimental cholestasis + Livergol), after inducing cholestasis, rats were treated with Livergol (300 mg/kg orally) for four weeks. The evaluations were based on sperm DNA integrity, sperm chromatin quality, teratozoospermia index, in vitro fertilizing ability of epididymal sperm and in vitro embryonic development. Findings of fertilization rates and embryo development in different experimental groups showed that oral administration of Livergol significantly improved the average fertility of epididymal sperm and the blastocystogenesis rate following induction of experimental cholestasis in adult male rats. Comparison of the results of sperm parameters evaluation in different experimental groups revealed that oral administration of Livergol caused a significant decrease in the average number of epididymal sperm with damaged DNA and immature nuclear chromatin as well as teratospermia indices and sperm deformity following induction of experimental cholestasis in adult male rats in group 4 ($P<0.05$). In conclusion, Livergol administration significantly improved fertilization rates and embryonic development in rats with induced cholestasis. It also markedly enhanced sperm quality parameters, including DNA integrity and chromatin maturity.

Key words: *Livergol, Cholestasis, Rat, fertility*