Bena University
Faculty of Veterinary Medicine
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Clinicopathological Studies on Stem Cells in Relation to Induced Ovarian Damage by Chemotherapy in Rats

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6. Summary

The current study was designed to evaluate hematological, biochemical, molecular and immunohistochemical changes as well as the histopathological alterations after treatment with stem cells with or without pregnant mare serum gonadotropin on experimentally CYP and DOX induced ovarian damage in female albino rats.

This study was done by using (50) Wister rats divided into 5 groups each group (10) rats:

Gp (1): control (-ve).

Gp (2): rats injected with (3 mg/kg) of DOX and (50 mg) CYP dissolved in sterile physiological saline i/p once a week for 5 weeks.

Gp (3): 10 rats undergo chemoablasion, then the rats injected with 5 IU of PMSG single s/c injection.

Gp (4): 10 rats undergo chemoablasion, then injected with iPSc i/v via tail vein single injection for 2 months.

Gp (5): of 10 rats undergo chemoablasion then injected with iPSc i/v via tail vein single injection combined with single s/c injection of 5 IU PMSG.

The samples (whole blood and serum) were collected after the previously mentioned durations (after 5 weeks and after 2 months). The tissue specimens, for molecular, immunohistochemical and histopathological examinations, were collected from the ovary at the time of sacrifice.

Our results showed that injection of DOX and CYP lead to decrease in erythrogram (RBCs count, Hb concentration and PCV value), leukogram (total WBCs, lymphocytes, neutrophil, and eosinophil counts), hormonal as E2 level, gene expression as Oct4, Stra8, Runx2 and PCNA.

On the other hand, our data showed that there were increase in monocyte counts, FSH and LH levels. These data supported by histopathological findings which revealed degenerated surface epithelia, few primordial, secondary, and antral follicles, as well as degenerated cortical and medulla areas.

After injection of induced pluripotent stem cells with or without PMSG, results showed that there were increase in erythrogram (RBCs count, MCHC), leukogram (WBCs, lymphocytes, neutrophil and eosinophil), E2 level, Oct4, Stra8, Runx2 and PCNA. Also, there were decrease in FSH and LH levels with non-significant changes of Hb, PCV. While decrease in MCV, MCH and monocytes. This data supported by histopathological findings which showed improvement in ovarian tissue architecture as well as well observed different stages of follicles (primary, secondary, and tertiary) and developing surface epithelium.