**Chemoprotective effect of different age or gender mice - derived plasma on ovarian failure after cyclophosphamide treatment**

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Background:: Premature ovarian failure is a major side effect of chemotherapy drugs

such as cyclophosphamide (CYC), which destroys ovarian follicles. In this research we assessed the chemoprotective effect of plasma derived from different age and gender groups on ovarian tissue in cyclophosphamide-treated mice.

Methods: Forty-two adult female mice were divided into six groups as follows: A,

control; B, vehicle; C, CYC; D, CYC + young male blood plasma; E, CYC + old male blood plasma; F, CYC + young female blood plasma. Ovarian failure was induced by injecting 150 mg/kg single dose intraperitoneally of CYC. Animals were also treated by the plasma derived from different age and gender groups. Hence, on day 1, three plasma treated groups received both 150 μL intraperitoneally along with 70 μL intravenous, and then every other 3 days, 150 μL intraperitoneally plasma up to 19 days. On day 21, the right ovaries were dissected and stained by hematoxylin and eosin for stereological studies and estrogen and progesterone levels were measured.

Results: Cyclophosphamide had a damaging effect on ovarian parameters, which led

to reduction in hormones level in comparison with the control group. However, treatment

with old male or young female blood plasma showed to have beneficial effects on number of primordial follicles, pre-antral follicles and granulosa cells; in addition to increase in volume of ovary, cortex, medulla, granulosa cells, theca interna, theca externa, nucleus and cytoplasm of oocytes in comparison to CYC group. Moreover, in the treated groups, estrogen and progesterone levels increased significantly in comparison with the CYC group (P<0.05).

Conclusion: Hence, it can be concluded that plasma derived from different age and

gender mice can ameliorate premature ovarian failure against the adverse effects of CYC.

Key words: ovarian failure, plasma, cyclophosphamide, follicle, stereology