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ASSESSMENT OF HUMAN CHORIOGONADOTROPIN IN CHEMICAL CYSTITIS MODEL

Hypothesis / aims of study
In this study, formed female rats induced with chemical cystitis were administered the hormone human choriogonadotropin (HCG) and it was aimed to reveal the usefulness of HCG in the treatment of interstitial cystitis/bladder pain syndrome.

Study design, materials and methods
The material for this study was 32 Wistars Albino female rats.The study groups and all the administrations to the groups are shown below:

Group 1 (the cystitis group):75 mg/kg of intraperitoneal cyclophosphamide (Endoxan-Eczacibasi-Baxter) was injected 4 times in total at 3 days intervals.
Group 2 (cystitis+HCG protection group):75 mg/kg of intraperitoneal cyclophosphamide (Endoxan-Eczacibasi-Baxter) was injected 4 times in total at 3 days intervals, and two doses of subcutaneous 10 iu/ml of HCG (Pregnyl - Merck Sharp and Dohme) were injected every other day before the injection of cyclophosphamide.
Group 3 (cystitis+HCG treatment group):75 mg/kg of intraperitoneal cyclophosphamide (Endoxan-Eczacibasi-Baxter) was injected 4 times in total at 3 days intervals, and two doses of subcutaneous 10 iu/ml of HCG (Pregnyl - Merck Sharp and Dohme) were injected every other day after the injection of cyclophosphamide.
Group 4 (Control group): Four doses of 2 ml %0.9 NaCl were injected intraperitoneally once every three days.

At the end of the study, general anaesthesia was given using 1mg/kg subcutaneous urethane in all of the rat groups. Blood samples were taken before the anaesthesia. 4-5 cc of blood was taken from the rats under anaesthesia and they were euthanized. Their bladders were removed during the necropsy. ¼ of the bladders taken were fixed with formalin for histopathological studies. Scores used for pathological assessment of lesions were summarized in Table 1. The remaining portions was used for the measurements of MDA and GSH. As a result of the deaths seen in all working groups during the study, the data of six subjects in all groups were subjected to statistical evaluation.
Table I. Scores used in the assessment of the pathologic lesions.

Hyperaemia	**1**
Degeneration of epithelium	**1**
Necrosis and loss in epithelium(mild)	**2**
Necrosis and loss in epithelium	**3**
Mononuclear cell infiltration	**2**
Haemorrhage (light)	**2**
Haemorrhage (severe)	**3**

Results
Prevalence of pathological lesions determined in the study groups was shown in Table 2 and total scores of pathological lesions was shown in Table 3. It was observed that the tissue damage in Group 2 was lower than in the other two groups. Inter-group comparison of the oxidative stress markers was demonstrated in Table 4. The GSH levels in Group 2 and 4 were significantly higher than in Group 1 and 2 groups(P=0.01). The MDA levels of Group 2 and 4 were significantly lower than the values in Group 1 and 3 (P<0.001). According to the TNF α and INF γ results of the groups, a statistically significant difference was detected among all groups (P<0.001).
Table II. Prevalence of pathological lesions determined in the study groups.

Pathological Lesion	**Rate of prevalence**		
	Group	**Group**	**Group**
Hyperaemia	6/6	3/6	5/6
Oedema	6/6	3/6	4/6
Degeneration of	6/6	5/6	5/6
Necrosis and	4/6	3/6	4/6
Necrosis and	2/6	0/6	1/6
Mononuclear	3/6	1/6	1/6
Haemorrhage	4/6	3/6	3/6
Haemorrhage	2/6	0/6	2/6

Table III. Total scores of pathological lesions determined in the study groups.

Score	Group 1	Group 2	Group 3	Control
1	8	7	8	0
2	11	9	9	0
3	10	8	8	0
4	9	7	9	0
5	9	9	11	0
6	11	7	9	0
Average	9.67	7.83	9	0

Table IV. Inter-group comparison of the oxidative stress marker, INF γ and TNFα results
Abbreviations: (MDA: malondialdehyde, INF γ: serum interferon gamma, TNFα: tumour necrosis factor alpha)

	Group 1	Group 2	Group 3	Group 4	P value
GLUTATHIONE(ng/dL)	8.21±0.14[a]	10.45±0.13[b]	8.42±0.14[a]	10.87±0.16[b]	**0.010**
MDA(nmoL/mL)	30.68±0.74[a]	26.16±0.33[b]	29.36±0.46[a]	24.98±0.28[b]	**<0.001**
INF Ɣ (pg/mL)	92.01±10.90[a]	76.61±9.12[b]	81.46±11.4[c]	66.40±2.65[d]	**<0.001**
TNF α (pg/mL)	433.35±89.62[a]	134.84±43.29[b]	231.99±52.88[c]	90.84±12.77[d]	**<0.001**

Interpretation of results
It was found that HCG has positive effects on the experimental cystitis in rats.

Concluding message
HCG could have a positive effect on chronic cystitis and bladder pain syndrome. These results should be confirmed in prospective studies.

Disclosures
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