

## 9<sup>th</sup> Yazd International Congress and Student Award on Reproductive Medicine with 4<sup>th</sup> Congress of Reproductive Genetics

### Poster Presentations

#### P-96

#### The effect of probiotic *Bifidobacterium longum* on testis tissue and testosterone hormone in alloxan-diabetic rats

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**Background:** Diabetes is a metabolic endocrine disorder that has a major impact on male reproductive system damages. Probiotics are beneficial microorganisms that could have preventive and therapeutic effects in various metabolic disorders beyond gastrointestinal health.

**Objective:** The present study carried out to investigate the effectiveness of Probiotic *Bifidobacterium longum* on the amelioration of some diabetes complications in the testis tissue in diabetic rats.

**Materials and Methods:** In this study, 30 male rats were randomly divided into three groups including; control, diabetic (induced with Alloxan 120 mg/kg), and diabetic+*Bifidobacterium longum*. Alloxan was administered intraperitoneally, while the rats in group diabetic+*Bifidobacterium longum* was fed orally by gavage with 1 mL ( $1 \times 10^9$  CFU/ml/day) of probiotics for 48 days. After dissection, fasting blood glucose,

oxidative stress markers, and the amount of tumor necrosis factor-alpha as an inflammatory cytokine were estimated. The rats' testes were quickly removed and put in 10% formalin for further stereological analysis. All data are expressed as mean  $\pm$  SEM. Statistical analysis was performed using One-way ANOVA followed by Tukey's post hoc tests using SPSS10 (v23) analytic software.

**Results:** The results showed that malondialdehyde, fasting blood glucose, and tumor necrosis factor-alpha levels decreased, but the level of serum testosterone also anti-oxidant enzymes including superoxide dismutases, and glutathione peroxidase increased significantly in the diabetic group receiving *Bifidobacterium longum* compared to the diabetic control group ( $p < 0.05$ ). The evaluation of testis tissue indicated that diabetic rats treated with *Bifidobacterium longum* significantly increased the number of spermatogonia, spermatocyte, spermatids, a spermatozoid, Leydig cells, and restoration of testis architecture compared to the diabetic group ( $p < 0.05$ ).

**Conclusion:** The results of the present study indicated that the *Bifidobacterium longum* decreased some diabetes complications in the testis tissue. More specifically, our results confirming the protective effects of *Bifidobacterium longum* through repairing the stereological damages induced by Alloxan. Therefore it might be a good candidate for treatment purposes.

**Key words:** Testis, *Bifidobacterium longum*, Diabetic, Rat.