

ABSTRACT

Bisphenol S (BPS) exerts behavioural, morphological and histological changes in the female mice. BPS is an important toxic endocrine disrupting chemicals which exerts harmful effects in animals and humans upon its exposure. As an endocrine disrupting chemical it alters the normal function of endocrine system by disturbing its normal mechanism. The basic purpose of this study was to evaluate the effect of BPS on histopathology of ovary of female mice and alteration of GnRH and Kiss-1 gene expression. In this experimental trial 30 female albino mice were distributed randomly into five different groups. Later, four groups were treated with low, medium and high dose (100mg/kg, 150mg/kg, 250mg/kg, 500mg/kg) of BPS orally for a period of 21 days. Control group mice was provided with normal conditions and feed only on corn oil along with normal diet. Behavioural changes were not observed at low dose of BPS, little to mild anxiety was seen at high doses. After treatment, mice dissection was performed and ovaries were preserved for slide preparation. BPS caused disorganization of follicular cells and it also causes degeneration of oocytes in ovary of mice. Control group A showed the compact structure of ovary and primary follicles in ovary was also normal. While the treated groups showed disrupted ovary structure, decrease in number of follicles, invasion of interstitial cells, oocytes degeneration at all doses. More severe changes were observed in group E at highest concentration of BPS. Molecular analysis showed up-regulation of GnRH and Kiss-1 gene expression in dose dependent manner at 100, 150 and 250mg/kg doses but there was no obvious change at 500mg/kg. This study concludes that there were mild to severe histopathological damage and changes in ovary of mice. BPS alters the expression of Kiss-1 gene which ultimately changed the expression of GnRH.

Key words: Bisphenol S; Ovary; Follicular cells; Oocytes; Theca cells; interstitial cells; GnRH, Kiss-1