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A possible role of Oxytocin on spermatogenesis and steroidogenesis in mouse: An approach towards development of precocious puberty

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The aim of this study was to evaluate the effects of Oxytocin (OT) treatment on the testis of mice. OT treatment produced significant changes in the spermatogenic and steroidogenic activity in the pre-pubertal mice. The mice treated with OT showed increased proliferation of germ cells as indicated by increased accumulation of spermatocytes and round spermatids in the seminiferous tubules. Dose-dependent increase in expression of Oxytocin Receptor (OT-R), Proliferating Cell Nuclear Antigen (PCNA) and Androgen Receptor (AR) proteins were observed in the testis of OT treated mice; when compared with the control further supports the role of OT in spermatogenesis. The pre-pubertal mice treated *in vivo* with increasing dose of OT showed significant increase in testosterone synthesis due to stimulatory effects of OT on testicular 3 beta HSD activity and increased expression of Steroidogenic Acute Regulatory protein (StAR) and Luteinizing Hormone (LH-receptor) proteins. Further, the *in vitro* study showed that OT, either alone or together with LH, also promotes testosterone synthesis and StAR level in the testis. The OT treatment also affects testicular expression of BCL-2 protein, which may be important for germ cell proliferation and survival. This study, thus suggests the role of OT in regulating testicular activity of pre-pubertal mice to attain precocious puberty.

Biography

Shabana Anjum obtained her PhD degree from Banaras Hindu University. She has published 5 papers and book chapters in reputed international journals and has been awarded in National Conference on Society for Reproductive Biology and Comparative Endocrinology. She has presented many papers in national and international conferences.

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