

Effect of neonatal treatment with bisphenol-A on the rat uterus with reference to the endometrial sensitization for ovo- implantation

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Although Bisphenol-A (BPA) used in the manufacture of polystyren and epoxy resins have been reported to be one of potent endocrine disrupters in both male and female rodents, the effect of this compound on the reproductive system varies depending on the dose and/or strain of animals used. In the present study, uterine response to progesterone(P) and estrogen(E2) injections supportive of the development of deciduomata was investigated in female rats of T strain given 7 daily injections of 0.01 , 0.1 or 1mg BPA from the day of birth to evaluate a long-lasting effect of BPA on the female reproductive system. Females given daily injections of the amount of vehicle only served as controls. Daily vaginal smear were taken for at least 10 days before the start of the hormone treatment.

All BPA-treated rats ovariectomized on the day of the 1st estrus after day 60 showed regular estrous cycles, and their ovaries contained follicles of varying sizes and corpora lutea. In 0.1 and 1mg BPA-treated rats, however, the ovaries were significantly smaller than in the controls. The uteri were markedly heavier in these BPA-treated rats than in the controls. Uterine response to 3 daily injections of P alone or together with E2 given after ovariectomy, when evaluated by the weights, steroid hormone receptor expressions and proliferation activities in the endometrial cells was essentially the same between BPA-treated and control rats.

These findings indicate that neonatal exposure of the female rat to BPA has some effects on both the central nervous system controlling female reproduction and peripheral organs.