

[P-30]

THE EFFECT OF BISPHENOL A ON THE THYROID HORMONE SYSTEM FOR THE ESTABLISHMENT OF SCREENING METHOD OF ENDOCRINE DISRUPTORS

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There has been many findings of natural, environmental or manufactured nonsteroidal substances shown to have estrogenic activity. Since estrogens affect reproduction and cellular development to cause disease in people or animals, chronic exposure may have a major impact on health. It is well-known that bisphenol-A(BPA), an industrial raw material for polycarbonate and epoxy resins, shows estrogenic activity. However, the thyroid hormonal activity of BPA has not been examined. In this study, we investigated the thyroid hormonal and anti-thyroid hormonal activities of BPA in in vitro and in vivo systems to establish a screening method for endocrine disruptors.

It was shown that BPA induced significant decrease of T3-induced prolactin hormone production while a slight increase of T3-induced growth hormone production in GH3 cells. In addition, we examined the influence of BPA on thyroid hormone biosynthesis in an in vivo system and showed that there was no change in the T4 level in the off-springs with prenatal exposure to BPA.

These results suggest that BPA may alter the thyroid hormone-induced production of growth hormone and prolactin by disturbing the hormone-receptor complex not by inhibiting biosynthesis of thyroid hormone.

Keyword : Bisphenol A, thyroid hormone, prolactin, growth hormone