

The Effect of Polychlorinbiphenyls on Premature Puberty in Girls

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Introduction:

- Studies show that onset of puberty in girls is occurring at increasingly younger ages.
- Environmental endocrine disruptors are implicated in the etiology of early puberty.
- Polychlorobiphenyls (PCBs) are one of the endocrine disruptor with proven estrogenic effects.

Aim: To investigate the effect of PCBs on premature puberty in girls.

Group 1 (n=50):

- The study group was selected from girls aged 2-8 years with a diagnosis of idiopathic premature puberty or isolated premature thelarche
- Tanner stages, antropometric mesaurments, bone age,
- Ovaries and uterus dimensions with pelvic ultrasonography and endometrium tickness
- Early morning basal LH, FSH, E2 serum levels, GnRH stimulation test (if necessary)

Group 2 (n=50):

- The healthy control group consisted of girls aged 2-8 years with no chronic disease or pubertal findings
- pubertal findings were evaluated via physical examination, and antropometric measurements were performed

- Twenty PCBs in first morning urine and serum specimens were analyzed in the study groups using gas chromatography-mass spectrophotometry method.
- The results were evaluated qualitatively and quantitatively, the quantitative determination limit was > 0.005 mg/kg

Table 1. PCBs measured in the study

PCB 8	PCB 77	PCB 118	PCB 156
PCB 20	PCB 81	PCB 123	PCB 157
PCB 28	PCB 101	PCB 126	PCB 167
PCB 35	PCB 105	PCB 138	PCB 169
PCB 52	PCB 114	PCB 153	PCB 189

Results

Table 2. Age and antropometric mesaurments of cases

	Group 1 (n=50)	Group 2 (n=50)	P
Age	6,7 ± 1,2	5,2 ± 1,2	0,007
Weight SDS	0,72±0,35	-0,20±0,26	0,008
Height SDS	0,77±1,40	-0,35±1,54	0,12
BMI SDS	0,49±1,09	-0,12±1,28	0,083

- Although no statistically significant difference was found between the groups in terms of BMI SDS, values were higher in subjects with premature puberty.
- No measurable PCBs were detected in any blood or serum specimens in the early puberty and control groups.

Conclusion:

- No association between PCBs and premature puberty was found in this study.
- In order for the endocrine disruptors to show their effects time, length and amount of exposure are important.
- We can conclude the exposure to PCBs in our region is not enough to show their effects on puberty.

