

[P-20]**Environmental Endocrine Disruptors and Endometriosis**

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BACKGROUND : A case-control study was designed to determine the possible association between dioxin like compounds (such as TCDD, PCDDs, PCDFs, and PCBs) and the occurrence and severity of endometriosis using CALUX bioassay method.

METHODS : We analyzed the serum level of dioxin like compounds in the endometriosis patients and control patients with similar symptoms. Among them, adipose tissues of 10 cases were analyzed by high resolution GC/MS for validation of CALUX bioassay.

RESULTS : There was a statistically significant association between exposure to dioxin like compounds and the occurrence of endometriosis ($p < 0.003$). The mean TEQ of control and case was 0.146 ug TEQ/L and 0.319 ug TEQ/L, respectively. Furthermore, we observed a correlation between dioxin concentrations in the blood and the severity of endometriosis. The higher stage of the endometriosis, the higher level of CALUX TEQ. The TEQs of endometriosis I, II, III, and IV stage were 0.214 ug TEQ/L, 0.284 ug TEQ/L, 0.353 ug TEQ/L and 0.435 ug TEQ/L, respectively.

Since dioxin like compounds bio-accumulates in adipose tissue, we could not rule out the possibility that blood concentration of dioxin like compounds may not correlate with their distribution in the body tissues. So adipose tissues of

case patients were additionally analyzed. For 10 selected case patients, concentration of PCDDs and PCDFs in the adipose tissue was measured by high resolution GC/MS. CALUX-TEQ values in the serum correlated well with the total TEQ values in adipose tissue determined by high resolution GC/MS ($R^2 = 0.96$). These data suggested that it is possible to estimate total TEQ from the CALUX-TEQ of serum.

CONCLUSIONS : This study showed statistically significant association between exposure to dioxin like compounds and the occurrence of endometriosis. And CALUX bioassay is valuable for measurement of dioxin like compounds in human sample.