



## The association between the environmental endocrine disruptors and Cardiovascular diseases: a systematic review and meta-analysis

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### Abstract:

**Background** Except for known cardiovascular risk factors, long-term exposure to environmental Endocrine disruptors (EEDs) has been proved to increase the risk of cardiovascular diseases (CVD), which are still controversial.

**Objective:** The aim of the study was to evaluate the relationship between CVD and EEDs which are most closely related to daily life .comprehensively explore the associations between EEDs exposure and CVD for the first time. Besides,. In addition, gender, age, body mass index (BMI), waist circumference (WC), total cholesterol (TC), high density lipoprotein (HDL), and low-density lipoprotein (LDL) were analysed in subgroup for the first time. To explore the role of these specific variables in the impact of BPA on CVD risk.

**Methods:** The heterogeneity between different studies was qualitatively and quantitatively evaluated using Q test and I2 statistical magnitude, respectively in Stata12.0 software. Subgroup analysis was performed using chemical homologs, a previously unused grouping method, to extract data and perform meta-analysis to assess their exposure to CVD.

**Results:** Twenty-three literatures were enrolled with a total sample size of 40717. The results indicated that polychlorinated biphenyl (PCB) 138, PCB153, and total PCB were the risk factors for CVD exposure (OR=1.26, 95%CI: 1.03-1.54; OR=1.17, 95%CI: 1.00-1.37; OR=1.50, 95%CI: 1.11-2.02). CVD risk had a statistical significance with organ-chlorine pesticide (OCPs) exposure (OR=1.17, 95%CI: 1.10-1.24), so was with phthalate (PAEs) and (OR=1.11, 95%CI: 1.05-1.11) Biphenyl A (BPA) (OR=1.25, 95%CI: 1.03-1.50). BPA exposure concentration had no correlations with sex, TC, or LDL, but had them with WC, HDL, age and BMI (SMA=0.16; 95%CI=0.08-0.23; SMD=-0.19; 95%CI:-0.27- -0.12; SMD=-0.78; 95%CI:-1.42- -0.14; SMD=0.08; 95%CI: 0.00-0.16).



**Conclusions:** EEDs exposure is a risk factor for CVD. Long-term exposure to EEDs can influence cardiovascular health in human, and the synergistic effect between homologs is significant, which may affect the outcome. In the investigations on the influencing factors of CVD exposed to BPA, the exposure concentration has no correlations with sex, TC or LDL, but has them with WC, HDL, age and BMI. The mechanism still needs to be explored and demonstrated by many prospective cohort studies, in vitro/in vivo results, as well as indices affecting CVD.

### Biography:

Xiangjun Fu Female, master, research direction is environmental toxicology Yu jie (19xx-), professor, doctor of overseas study, master's tutor, high-level and innovative talents of guizhou province. In recent five years, he has published nearly 60 papers, including 17 SCI papers as the first author or corresponding author, and 22 papers in Chinese core journals.

### Publication of speakers:

1. Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. US Department of Health and Human Services, Centers for Disease Control and Prevention; 2011
2. ADA. Economic costs of diabetes in the U.S. in 2012. Diabetes Care. 2013;36:1033-1046.

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