Letter

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Investigating Susceptibility to Diabetes Using Features of the Adipose Tissue in Response to *In Utero* Polycyclic Aromatic Hydrocarbons Exposure (*Diabetes Metab J* 2016;40:494-508)

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Polycyclic aromatic hydrocarbons (PAHs) is known as an environmental contaminant (there are more than 200 PAHs), which has multiple aromatic rings. PAH can be found in various environments including the situation of imperfect combustion of oil and coal. The toxicity of PAH occurs by binding to its receptor for arylhydrocarbons in humans [1,2]. Recent studies showed that PAH in the air was associated with insulin resistance and the development of type 2 diabetes mellitus [3-5]. In addition, PAH exposure was related to higher prevalence of diabetes in American adults [6]. But the causality between PAH and metabolic diseases is still unknown.

In this article, Gato et al. [7] reported the influence of 2AA exposure to the fetus, with special focus on the changes of adipose tissue. They analyzed pups and pregnant dams from control to high dose of 2AA exposure (0 to 100 mg/kg) in regular diet group and in moderate to high fat diet group. Serum glucose level was increased with increasing doses of 2AA in animals. The mean sizes of adipocytes were larger in treated and combined 2AA and high fat diet group. Even if 2AA had influences on insulin resistance and glucose metabolism, the results of exposure of 2AA in pregnant animals and direct effects on fetus are rare and interesting. We have several questions for your work [7].

First question is about weight changes in the animals. Although there is no significant differences, the high dose 2AA group showed the lowest weight gain, which was even lower than control group in this experiment. The same phenomenon was shown regarding the accumulation of CD68 in adipocyte, which showed lowest expression in the high-dose of 2AA exposure. Considering that obesity and adipocyte inflammation are important factors in developing insulin resistance and diabetes, this needs more explanation. Is chronic, low-dose exposure of PAH is more important than acute or high-dose exposure of PAH?

Second question is, were the size of adipocytes, serum glucose level, and the amount of adiponectin expression different according to differences in age of pregnant animals? For considering the alteration of glucose metabolism and insulin resistance was significantly related to the higher age of the pregnant women [8-10].

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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