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TITLE: Chapel Hill bisphenol A expert panel consensus statement: Integration of mechanisms, effects in animals and potential to impact human health at current levels of exposure

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ABSTRACT:

Existing cross-sectional studies indicated a positive association of bisphenol A (BPA) with overweight and obesity. However, the relationship and potential mechanisms underlying this association remain to be elucidated in prospective studies.This study was designed to investigate whether serum BPA is associated with incident overweight and obesity risk, and to further explore whether adiponectin plays a mediating role in the association.We measured blood BPA and adiponectin in Chinese populations. The association of serum BPA with overweight and obesity risk was evaluated using multivariable logistic regression models. We further examined the mediating effect of adiponectin by causal mediation analysis.Among 796 participants free of overweight and obesity at baseline, 133 individuals developed overweight and obesity during the follow-up period. Compared with those in the lowest quartile of serum BPA, those in the second and third quartiles were positively associated with incident overweight and obesity risk adjusting for covariates (all P-values < 0.05), whereas this association was not observed in the fourth quartile. Further spline analysis showed an inverted U-shaped dose-response relationship (Pnon-linear = 0.04). Furthermore, each unit of serum log10-transformed BPA levels was associated with higher changes in waist-to-height ratio and body roundness index (all P-values < 0.05). Mediation analysis indicated significant indirect effects of adiponectin on the associations of BPA with overweight and obesity prevalence (mediation proportion: 46.08%; P = 0.02), and BMI levels (mediation proportion: 30.32%; P = 0.03).Serum BPA displayed a positive association with incident overweight and obesity risk in a non-monotonic pattern, and adiponectin might mediate the association. Further mechanistic studies are warranted.

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