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Authors' response

We would like to thank Drs. Katsiki, Athyros and Karagiannis for their interest in our work [1]. The relationship of metabolic syndrome (MetS) with cardiovascular (CV) disease, dyslipidemia, hypertension, glucose intolerance, insulin resistance, overweight, obesity and type 2 diabetes mellitus is well established and widely known. In any case, it should be pinpointed that this connection is rather obvious since the mentioned clinical entities are, in variable degrees of importance, part of the definition of the MetS or, alternatively, part of its predictable outcomes. It is very meritorious that the above mentioned authors have duly enlightened other aspects of the MetS, not necessarily related to the CV or endocrine systems [2]. For instance, MetS was found to be associated with increased blood lead levels [3], sex hormone binding globulin gene polymorphisms [4], augmented neck circumference [5] and heart rate turbulence [6]. Therefore, the authors' findings are in line with our opinion that MetS is a multifactorial and polyfacetic syndrome, standing basically on 2 tightly knotted conditions: obesity and insulin resistance. While obesity causes insulin resistance, on the other hand insulin resistance modifies adipose tissue responses to insulin and thereby recapitulates the obese state [1]. This situation may be exacerbated by other concomitant factors [7, 8] like abnormalities in adipokines, vitamin D deficiency, polycystic ovary syndrome, obstructive sleep apnea, hyperuricemia, renal and hepatic diseases, as described by the authors [9–12] in their recent letter. These clinical findings are in keeping with current experimental research. It has been recently shown in animal models that insulin and its signaling cascade normally control cell growth, metabolism and survival through activation of mitogen-activated protein kinases (MAPKs) and phosphotidylinositide-3-kinase (PI3K) [13], thus suggesting an expanded and global influence of insulin on all biological systems in mammals.

Conflict of interest: none declared

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