Ameliorative effects of metformin on renal histologic and biochemical alterations of gentamicin-induced renal toxicity in Wistar rats

Sir,

Recently, we published an article in *J Res Med Sci*, entitled "Ameliorative effects of metformin on renal histologic and biochemical alterations of gentamicin-induced renal toxicity in Wistar rats."[1] In this article, it is concluded that metformin (MF) may prevent or ameliorate GM-induced acute renal failure, and therefore, it might be beneficial in patients under treatment with this medicine.[1] In this letter, we would like to point out a few points about the mentioned conclusion. In an agreement with our findings, Taheri *et al*. recently conducted a study on the effects of MF on renal function and structure after unilateral ischemia–reperfusion in rat. They found that MF provided some renal protection against ischemia and reperfusion (I/R) induced injury to the rats kidney. They concluded that MF with activation of adenosine monophosphate-activated protein kinase (AMPK) and endothelial nitric oxide synthase have tissue protective effects.[2] More recently, Kim *et al*. performed a study using MF (350 mg/kg/day) for spontaneously diabetic Torii (SDT) rats for 17 weeks. They examined blood glucose, glycated hemoglobin and albuminuria, kidney histopathology, renal 8-hydroxydeoxyguanosine levels, and also apoptosis. They found that treatment of SDT rats with MF restored podocyte loss. They suggested that diabetes-induced podocyte loss in diabetic nephropathy could be suppressed by MF, through the repression of oxidative injury.[3]

Diabetic nephropathy is one of the most important complication of diabetes mellitus[4,5] and MF has been widely used for treatment of type 2 diabetes.[3,4] Thus according to our results and those published by Taheri *et al*., MF protects against tubular injury by restoring the biochemical alterations and modulation of oxidative stress on the tubules.[1,2] Moreover, according to the study by Kim *et al*., MF protects podocytes in diabetic nephropathy,[3] while in diabetic nephropathy, there is also tubular cell injury due to glocosuria.[3-7] These findings can more potentiate the clinical use of MF in the prevention of diabetic nephropathy. In this regard, to understand the MF-nephroprotective properties better, more experimental rat model or clinical studies are suggested.

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