عنوان مقاله:

Phytoestrogens by inhibiting the non-classical oestrogen receptor, overcome the adverse effect of bisphenol A on hFOB 1.19 cells

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خلاصه مقاله:

Objective(s): Since bisphenol A (BPA) induces bone loss and phytoestrogens enhance the osteoblastogenesis by binding to the non-classical and classical oestrogen receptors, respectively, the present study was aimed to observe the osteoprotective effect of phytoestrogens on BPA-induced osteoblasts in hFOB 1.19 cells.Materials and Methods: All groups of hFOB 1.19 cells were induced with 12.5 µg/ml of BPA except the control (Ctrl) group. Meanwhile, treated groups received phytoestrogens; Daidzein (Dz), Genistein (Gt), Equol (Eq) and 17β-oestradiol (Est) in different concentrations for 24 hr duration.Results: We found that the protein expression of non-classical oestrogen-related receptor (ERRG) was highly expressed in BPA group, whereas classical oestrogen receptor alpha (ERα) and oestrogen receptor beta (ERβ) were relatively increased with phytoestrogens treatment under BPA exposure. The dense actin cytoskeletal filaments were also observed. qRT-PCR showed up-regulation of mitogen-activated protein kinase 3 (MAPK3) and G protein-coupled receptor 30 (GPR30) expressions; significant down-regulation of ERRG and up-regulation of ERα and ERβ were observed in phytoestrogens-treated cells, which was supported by the increased expressions of oestrogen receptor 1 (ESR1) and oestrogen receptor 2 (ESR2).Conclusion: Phytoestrogens improved the deteriorative effect of BPA via down-regulation of ERRG in hFOB 1.19 cells. This study showed that the efficacy of consumption of phytoestrogens in rendering them as potential therapeutic strategy in combating the adverse bone effects of BPA.

کلمات کلیدی:

Bisphenol A, ERRG, hFOB 1.19 cells Oestrogens receptors Phytoestrogens