Jin-Mu Yi et al., J Cancer Sci Ther 2016, 8:10(Suppl)
http://dx.doi.org/10.4172/1948-5956.C1.094

KIOM-CRC#140(FFWE) attenuates oxaliplatin-induced neurotoxicity *in vitro* and *in vivo* model

Jin-Mu Yi, You Jin Lee, Ok-Sun Bang and **No Soo Kim**
Korea Institute of Oriental Medicine, South Korea

Oxaliplatin can induce peripheral neuropathy (OXIPN) as an adverse side effect in cancer patients. Until now, no effective preventive or therapeutic drug has been developed; therefore, the dose-limiting factor of OXIPN is still and obstacle in the use of oxaliplatin to treat cancer patients. We tried to find effective materials to relieve oxaliplatin-mediated neurotoxicity using a library of medicinal herb extracts that have been traditionally used. We screened extracts with biological activities to relieve oxaliplatin-mediated neurotoxicity using in vitro cell-based assays which employed the nerve growth factor (NGF)-induced neurite growth from rat pheochromocytoma PC12 cells, and found that the aqueous extract of FFWE could effectively recover the cells from the neurotoxicity of oxaliplatin. The protective effect of FFWE on oxaliplatin-induced neurotoxicity was evaluated in vitro by quantifying nerve growth factor (NGF)-induced neurite outgrowth in PC12 treated with a combination of oxaliplatin and FFWE. The neuroprotective potential of FFWE was further confirmed by measuring the changes in nociceptive sensitivities to external mechanical stimuli in neuropathic animals induced by oxaliplatin. In the present study, we report for the first time that the FFWE can attenuate the oxaliplatin-induced neurotoxicity in vitro and in vivo models. FFWE may be considered as a good starting material to develop a novel therapeutic agent targeting OXIPN.

Image

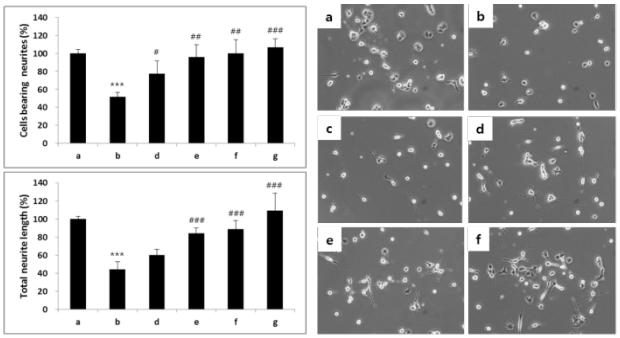

Figure. Protection from oxaliplatin-mediated neurotoxicity by FFWE in differentiated PC12 cells. (A) PC12 cells were cultured on a collagen type IV-coated surface and neurite growth was initiated by the treatment of 100 ng/mL NGF. a: (+)NGF, b: (+)NGF+Oxal(200nM), c: (+)NGF+Oxal+WEFF(12.5ug/mL), d: (+)NGF+Oxal+WEFF(25ug/mL), e: (+)NGF+Oxal+WEFF(50ug/mL), f : (+)NGF+Oxal+WEFF(100ug/mL) ***p < 0.001 vs a; #p < 0.05 , ##p < 0.01 and ###P < 0.001 vs b

Biography

Jin-Mu Yi has his expertise in evaluation of anti-cancer and anti-CIPN activity using in vitro and in vivo model.

jmyi@kiom.re.kr

Notes: