

A STUDY ON THE EFFECT OF EGF AGAINST OXYGEN RADICAL-INDUCED NEUROTOXICITY IN SPINAL DORSAL ROOT GANGLION NEURONS OF MOUSE IN VITRO

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In order to investigate the toxic effect of oxygen radicals on cultured spinal dorsal root ganglion(DRG) neurons of mouse, the neurotoxic effect of oxygen radicals was evaluated after cultured DRG neurons were exposed to xanthine oxidase(XO) and hypoxanthine(HX)-oxygen radical generating system. In addition, the neuroprotective effect of antioxidants and growth factor against oxidant-induced neurotoxicity was also evaluated in these cultures. The results were as follows: 1. Lethal concentration 50(LC₅₀) was 35mU/ml XO and 0.1mM HX in cultured DRG neurons. 2. Oxygen radicals induced the morphological changes such as the decrease of cell number and the loss of neurites in these cultures. 3. Glutathione and catalase blocked oxidant-induced neurotoxicity. 4. EGF increased the cell viability and neurofilament in neurons damaged by oxygen radicals.

From above the results, it is suggested that selective antioxidants and neurotrophic factor such as glutathione, catalase and EGF are effective in blocking the neurotoxicity induced by oxygen radicals in cultured spinal DRG neurons of neonatal mouse.