

ABSTRACT

THE EFFECT OF CURCUMIN ON CASPASE-3 EXPRESSIONS IN OXALIPLATIN INDUCED PERIPHERAL NEUROPATHY MICE MODEL

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Oxaliplatin-induced peripheral neuropathy (OIPN) is caused by neurotoxicity majorly on peripheral neural system. It affects on somatosensory neuron system. OIPN pathogenesis involves mitochondria dysfunction, *Reactive Oxygen Species* (ROS) product enhancement, oxidative stress, as well as apoptosis. Apoptosis induced by caspase, MAPK, and PKC. Caspase-3 is an apoptosis marker which expressed in terminal phase of procaspase activation that triggered DNA fragmentation, nucleus and sitoskeletal protein degradation, protein cross-linked, and ligand expression for fagositosis.

Cucumin is a potent antioxidant that has role as antiinflammatory and antiapoptosis. Therefore, curcumin possibly expect to attenuate caspase-3 expression in primary somatosensory cortex (S1) and thalamic brain area during OIPN. This experiment exerted 9 mice and divided into control group, OIPN group, and OIPN with curcumin 120 mg/kg group. OIPN was induced by oxaliplatin 3 mg/kg on day 0, 2, 4, 6 followed by intraperitoneal curcumin administration per day for 7 days. Mice were sacrificed on day 22, brain were extracted, *somatosensory cortex* (S1) and thalamus were analysed. mRNA obtained from brain extraction is amplified by Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR). PCR product then applicated on 2.0% agarose gel and exceeded electrophoresis stage. Gel was documeted by ultraviolet light as band emergence. Caspase-3 expressions were measured using PCR method. The results suggest that thalamus area showed attenuation on caspase-3 expression in OIPN with curcumin group by intraperitoneal curcumin administration. Nevertheless, its expression in somatosensory cortex (S1) tend to decrease.

Keywords: Caspase-3, Curcumin expression, OIPN, Oxaliplatin, Polymerase Chain Reaction (PCR)