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In vitro cytotoxicity of Chloromethyl-2-dihydroxyphosphinyl-6,7-dimethoxy-1,2,3,4-tetra hydroisoquinoline on HL60 cells and apoptotic effet

Kun Jung Kim, Sung Min Ju, Kee Bok Yeom, Dae Geun Kim, Chai Ho Lee[1], Won Sin Kim[1], Dong Min Han[1] and Byung Hun Jeon*

Department of Pathology, College of Oriental Medicine, [1]Divison of Natural Science and Technology, College of Natural Sciences, Wonkwang University, Iksan 570-749, Korea.

The chloromethyl-2-dihydroxyphosphinyl-6,7-dimethoxy-1,2,3,4-tetrahydro isoquino- line (CDDT) is a newly synthesized agent which is derivated from 1,2,3,4- Tetrahydroiso-quinoline (TIQ). The TIQs include potent cytotoxic agents that display a range of antitumor activities, antimicrobial activity, and other biological properties. To investigate whether the CDDT has cytotoxic effect on HL-60 cells (human leukemia cell line), MTT assay, the change of cells morphology by DAPI stain and DNA fragmentation were performed with HL-60 cells. The drug concentration of 50 % growth inhibition (IC50) of HL-60 induced by CDDT was 37 ㎍/㎖. Through morphological analyses, it was showed that the CDDT treated HL-60 cells exhibited classical apoptotic features by a fluorescence microscopic finding. In addition, DNA fragmentation were detected by agarose gel electrophoresis after the treatment of CDDT. These results indicate that the IC50 concentration of CDDT is 37 ㎍/㎖ and a possible cellular mechanism of apoptotic effect should be futher studied.

Keyword : CDDT; Cytotoxicity; Apoptosis; HL-60; DNA fragmentation.