Peroxynitrite-Induced Apoptosis in FaDu Cells is Correlated with the Up-Regulation of PDCD4 Gene

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SUMMARY. Peroxynitrite (ONOO\(^-\)) is a highly reactive species that attacks a range of biological targets. The present study was designed to investigate the effect of ONOO\(^-\) on FaDu cells, a human hypopharyngeal cancer cell line, with special attention given to the PDCD4 gene expression in response to this oxidative stress. The in vitro cultured FaDu cells were subjected to various concentrations of ONOO\(^-\), then, the cell viability and morphological changes were examined by MTT assay and acridine orange staining, respectively. The protein expressions of Caspase-9, Caspase-3, and PDCD4 were determined by western blot and the mRNA expression of PDCD4 was analyzed by RT-PCR. This work demonstrated that ONOO\(^-\) could inhibit the proliferation and induce apoptosis of FaDu cells. The protein expressions of Caspase-9, Caspase-3, and PDCD4 were up-regulated and, meanwhile, the mRNA expression of PDCD4 was increased, in response to ONOO\(^-\). These data suggest that ONOO\(^-\) can effectively suppress proliferation of FaDu cells via triggering the apoptotic pathway. PDCD4 gene may play an important role in ONOO\(^-\)-induced apoptosis in FaDu cells, which may offer a new target for the treatment of hypopharyngeal carcinoma.

KEY WORDS: Apoptosis, FaDu cells, PDCD4 gene, Peroxynitrite.

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