

3 - 82 Role of Ferulic Acid in Radiosensitivity of Human Glioma Cell Line

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Ferulic acid (FA), a polyphenol very abundant in vegetables and maize bran, has been reported to have many physiological functions, including antioxidant, antimicrobial, anti-inflammatory, anti-thrombosis and anti-cancer^[1]. In the present study, the radiosensitization of ferulic acid has been investigated in human glioma cell line in vitro. Percentage of growth inhibition performed by SRB assay, intracellular ROS levels detected using DCFH-DA fluorescence probe and migratory behavior determined by transwell filter migration assay when different doses of FA were administrated for 1h prior to x-ray irradiation (6 Gy). The present data show that significant enhancements of reactive oxygen species (ROS) levels were observed in FA (50,100, 200 μ M) plus radiation treatments in M059k cells at 24 h after irradiation. In particular, ROS level has been increased by 56.7% in FA (200 μ M) plus radiation group compared to control group (no radiation or FA was applied), indicating that cell suffers from severe oxidative stress. Furthermore, cell proliferation and migration were markedly inhibited in FA plus radiation treated cells. Our results suggest that high dose FA may make glioma cells more susceptible to radiation effects and act as a potential radiosensitizer.

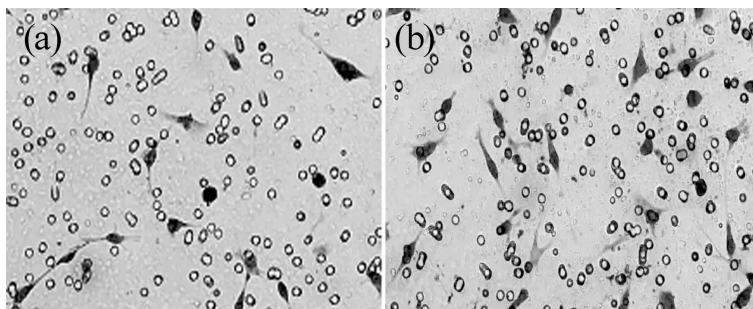


Fig. 1 Glioma cell migration in transwell chambers after different treatments. (a) Control group, (b) FA at 200 μ M + radiation group.

Reference

- [1] E. Barone, V. Calabrese, C. Mancuso, Biogerontology, 10(2009)97.