

Anticancer and antioxidant profiling effects of Nerolidol against DMBA induced oral experimental carcinogenesis

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Abstract

The objective of this study is to examine the chemopreventive effects of Nerolidol (NER) on hamster buccal pouch carcinogenesis (HBC) induced by 7,12-dimethylbenz(a)anthracene (DMBA) in male golden Syrian hamsters. In this study, oral squamous cell carcinoma was developed in the buccal pouch of an oral painted hamster with 0.5% DMBA in liquid paraffin three times weekly for 12 weeks. To assess DMBA-induced hamster buccal tissue carcinogenesis, biochemical endpoints such as Phase I and II detoxification enzymes, antioxidants, lipid peroxidation (LPO) by-products, and renal function markers, as well as histopathological examinations, were used. Furthermore, the immunohistochemical studies of interleukin-6 were investigated to find the inflammatory link in the HBC carcinogenesis. In our results, DMBA alone exposed hamsters showed 100% tumor growth, altered levels of antioxidants, detoxification agents, LPO, and renal function identifiers as compared to the control hamsters. The outcome in present biochemical, histopathological, and immunohistochemistry studies has been found a reverse in NER-treated hamsters against the tumor. This study concluded that NER modulated the biochemical profiles (antioxidants, detoxification, LPO, and renal function markers) and inhibited tumor development in DMBA induced oral carcinogenesis.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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