

**The role of Green Tea Polyphenols and BCG
Vaccine in Prevention and Treatment of
Orally Induced Premalignant and Malignant
Lesions in the Cheek Mucosa of Rabbits by
the Use of 7, 12-Dimethylbenz[a]
Anthracene (DMBA) Carcinogen**

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Abstract

Back ground:

Oral cancer is a common neoplasm worldwide, particularly in the developing countries. It has become an important health care problem in many countries, because this disease develops slowly, therefore; early detection and intervention can greatly affect ultimate outcome.

Cancer chemoprevention is the use of chemical agents to inhibit, delay or reverse carcinogenesis. The concept of cancer prevention by use of naturally occurring substances that could be included in the diet is under investigation as a practical approach towards reducing cancer incidence, and therefore the mortality and morbidity associated with this disease.

Tea is one of the most popular beverages consumed worldwide. Green tea, black tea and tea constituents have inhibitory effects on experimental tumorigenesis and have inhibitory effect in a number of target organs such as skin, lung, esophagus, liver, small intestine, pancreas and bladder. Many studies detected a high level of tea catechins in human saliva after tea consumption, suggesting that the oral cavity could be a good target for tea to exert its chemopreventive effect against carcinogenesis.

Other, methods for generating non-specific immune response against tumors includes intravesical BCG (Bacille Calmette Guerin) vaccine, which has anticarcinogenic effect in patient with superficial transitional-cell carcinoma.

Aim of the study:

To evaluate the role of green tea administration (orally and topically) and BCG vaccine in prevention and treatment of induced oral cancer.

Materials and Methods:

Twenty five albino rabbits were grouped in to:

-Group1 positive control (4 rabbits) with carcinogen DMBA induction for 12 weeks duration.

-Group 2 six rabbits received oral green tea (3 ml daily) for 1 month before cancer induction, followed by carcinogenesis period.

-Group 3 five rabbits received oral green tea for 1 month after cancer induction.

-Group 4 five rabbits with intralesional(topical) injection of green teafor 1 month after cancer induction.

-Group 5 five rabbits with intralesional injection of BCG application for 1 month after cancer induction.

Biopsies were studied histopathologically and incidence of hyperplasia, dysplasia and metaplasia were estimated in the studied groups.

Results:

All groups (except group 2) show a reduction in rabbits weight with the experimental periods.

There is a reduction in volume of lesion in rabbits treated with oral and topical administration of green tea and BCG vaccine.

Histopathological findings show formation of keratine layer in groups 2,3,4,5 with signs of apoptosis in epithelial cell layers.

High incidence of hyperplasia, dysplasia and metaplasia were reported in group 1.

Conclusion:

Oral administration of green tea showed to be a preventive therapy for occurrence of cancer and have a better therapeutic result than topical green tea application and topical BCG vaccine application.