

**P21****Combined evaluation of expression of telomerase, survivin and anti-apoptotic Bcl-2 family members in relation to loss of differentiation and apoptosis in human head and neck cancers**

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Head and neck squamous cell carcinoma (HNSCC) is one of the most common cancers which accounts for 5% of all adult cancers worldwide. Deregulation of apoptosis is seen in many human cancers whereby the antiapoptotic members of the Bcl-2 family and the Inhibitor of apoptosis (IAP) member, Survivin have been shown to play an important role. To determine whether aberrations in these anti-apoptotic proteins are related to the development of HNSCC, we compared their protein expression in tumor tissue sections of 46 HNSCC patients and 19 histopathologically normal tissues by immunohistochemistry. We also looked at the telomerase activity by PCR-ELISA whose reactivation is seen in many tumors as well as looked at the apoptotic index by TUNEL assay in these tumors. Protein expression of Bcl-2 and Survivin was significantly associated with the histological differentiation status of tumors and that of Bcl-XL with nodal metastasis. Telomerase activity was found to be upregulated in tumors as compared to the normal tissue ( $p < 0.001$ ). Immunohistochemistry has generally been performed on paraffin embedded archival samples thereby making the sample unavailable to assay the telomerase enzyme activity. To the best of our knowledge, this is the first study of its kind whereby we have used frozen samples to simultaneously look into the correlation of the apoptotic pathway and proliferation promoting telomerase enzyme activity in relation to loss of apoptosis and differentiation in HNSCCs. Telomerase activity in these tumors was found to be correlated with Bcl-2, Bcl-XL and Survivin overexpression and with reduced apoptosis in tumors thereby suggesting that novel strategies can be developed to control cancer cell growth by co-targeting telomerase and apoptotic pathways.

**P22****Chemopreventive dietary factors augment apoptosis induced by cisplatin in head and neck cancer**

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Epidemiological data suggests that nutrient factors obtained from fruits and vegetables play an important chemopreventive role, however, current knowledge of the effect of dietary factors on toxicity of chemotherapeutic agents is limited. A better understanding of molecular mechanisms involved in process of apoptosis is needed by which chemotherapeutic drugs kill tumor cells. The objective of this study was to investigate whether efficacy of chemotherapeutic agent Cisplatin generally used for head and neck cancers can be enhanced by pretreatment with b-carotene, Retinoic acid, Quercetin and Genistein

in human laryngeal carcinoma HeP2 cells. Morphological examination, Flowcytometry and Caspase-3 assay were used for detection of apoptosis. Expression of the antiapoptotic proteins Bcl-2, Bcl-XL and Survivin, a member of Inhibitor of Apoptosis (IAP) family was seen by Western blotting. Results indicate that priming with these dietary factors for 24 hours prior to Cisplatin treatment results in an increase in apoptosis induced by Cisplatin alone. Cisplatin (2.5 microg/ml) treatment for 24 hours led to 20% apoptosis whereas pretreatment with these dietary factors for 24 hours prior to Cisplatin treatment at this dose resulted in an increase of apoptosis as seen with Cisplatin alone. The findings indicate that these dietary factors sensitize the Hep2 cells by downregulating the anti-apoptotic members of the Bcl-2 family namely Bcl-2, Bcl-XL and also Survivin, a member of the inhibitor of apoptosis (IAP) family. Cisplatin alone did not significantly reduce the levels of the antiapoptotic proteins. However the dietary factors alone and along with Cisplatin, resulted in a significant decrease in the expression of these proteins as observed by Western blotting thereby sensitizing the Hep2 cells to apoptosis. Hence, these dietary factors can be used in combination with Cisplatin to sensitize head and neck cancer cells to chemotherapy.

**P23****The role of primary health care professionals in tobacco prevention**

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**Objective:** Health professionals in primary health care are considered to have the greatest potential for influencing smoking habits in the general population and specific risk groups such as children, pregnant women etc. The objective of the study was to analyze professional attitudes of doctors and nurses in primary health care towards smoking and the impact their personal habits on their professional behaviour.

**Methods:** A survey on personal habits and attitudes toward tobacco use was carried out in a representative sample of primary health care centers in Belgrade.

**Results:** A total of 1693 primary health care professionals (general practitioners, gynecologists, pediatricians, dentists, nurses etc) completed a questionnaire. The prevalence of smokers in this group was 43%. The number of smokers was significantly higher among nurses than among doctors (48% and 35%, respectively). Although 60% of participants consider smoking extremely harmful and think they have enough knowledge on that subject, only 21% ask regularly all new patient of their smoking habits. One third of health professionals regularly advise patients smokers to stop smoking; only 12% recommend patients to visit centers specialized for cessation programs. The attitude towards smoking depends on a smoking status of a professional - doctors smokers ask and advise patients on smoking less frequently than doctors non-smokers. Ten percent of participants have participated in tobacco control programs so far. Less than half of participants (40%) expressed interest in participating in future tobacco prevention activities.