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| **Name:** |
| Christian May |
| **Group:** |
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| **Pathology Question:** |
| How does Smoking effect the Periodontium |
| **Report:** |
| The components of Cigarette smoke have been widely studied, and the components in it have been identified. Electronic vape smoke varies due to different styles of delivery systems and components of the device. In general, electronic vapor has been found to contain substances like nicotine, propylene glycol, cancer causing chemicals, aldehydes, carybonyls and various heavy metals. The liqud vapor is heated up and humidified into a cloud to deliver the nicotine to the user.  The amount of literature on the effects of vaping on the oral cavity are very limited. Most studies go over the bio chem using human cell samples. The vapor smoke on the oral cavity has been found to have oxidative carbonyl stress on cells in the periodontium. This leads to inflammation and DNA damage, increasing the amount of stress and inflammatory cytokines in the PDL. The damage from the smoke arrests cells in a state of premature senescence, stopping their cell cycle and any repair mechanisms. Additionally, it is found that protein carbonylation causing autoantibody production. The autoantibody production leads to bone and tissue destruction. It was found in studies that there was an increased stress response in flavored vapes, faovring a higher oxidant and ROS reactivity. There currently is no literature on the clinical findings of vaping, but what we do know is the results of chronic inflammation on the periodontium.  Tobacco smoke has a lot of the same effects that vaping does with the inflammation and cell repair inhibition. The cells of the periodontium go through smoking-induced chronic hypoxia, and there is a decrease in PMN’s found in smokers crevicular fluid. Overall cigarette smoke significantly alters cell viability, cell migration, myofibroblastic differentiation in ginivial mesenchymal cells. In addition, nicotine affects the cells ability to adhere to tooth structure. |
| **References:** |
| Sundar, I. K., Javed, F., Romanos, G. E., & Rahman, I. (2016). E-cigarettes and flavorings induce inflammatory and pro-senescence responses in oral epithelial cells and periodontal fibroblasts. *Oncotarget*, *7*(47), 77196.  Chahal, G. S., Chhina, K., Chhabra, V., & Chahal, A. (2017). Smoking and its effect on periodontium–Revisited. *Indian Journal of Dental Sciences*, *9*(1), 44. |