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| 3B-1 |
| **Basic Science Question:** |
| What are some age related changes in the oral cavity? |
| **Report:** |
| Age related changes in the oral cavity can be seen in various structures including the dentition, gingiva and mucosa as well as salivary glands.  With salivary glands in particular, a decrease in function can be seen with progressive aging. Normally, salivary serves a wide range of functions within the oral cavity from serving as an immune defense, to serving as a protective barrier for the oral cavity, airway and digestive tract. The decrease in function could cause mouth dryness which could ultimately increase the progression of dental caries within the oral cavity (Gonsalves et al. 2008).  In relation to oral mucosa, normally, the oral mucosa serves a protective function against pathogenic microorganisms as well as various types of abrasion. With degeneration of mucosal function, the oral cavity is made more susceptible to pathogens as well as daily activities that may jeopardize the health state of the oral cavity, such as chemical wear and abrasion (Gonsalves et al., 2008).  Specifically with dentition, there are multiple morphological changes that occur which cause subsequent deficiencies in normal physiological function. Two primary age dependent changes in dentition are continued growth, which includes physiological secondary dentin formation, and the gradual obturation of dentinal tubules, otherwise referred to as dentin sclerosis (Gonsalves et al. 2008).  With other functional components of dentition, dentinal pulp increases in the content of fibers while decreases in the content of cells. This ultimately causes an overall decrease in volume of the dental pulp. This aspect in conjunction with other pulpal changes such as decreased blood supply in the subodontogenic region ultimately reduces the reparative capacity of teeth in comparison to the dentition in younger individuals (Gonsalves et al. 2008). Additionally, the reduced amount of vasculature in the pulp cavity reduces tooth sensitivity to environmental stimuli which ultimately decreases the response to caries and decay or trauma (Razak et al. 2014). Apart from blood supply, pulp calcifications can also be seen with aging along with narrowing of the root canals (Gonsalves et al. 2008).  Another aspect of dentition that undergoes changes with age is the thickening of cementum. Because of the organic composition of cementum, its thickening ultimately reduces its resistance to environmental agents such as sugars, acids from soft drinks and tobacco (Razak et a., 2014). Additionally, the rate at which cementum is formed is ultimately reduced, which contributes to the decreased reparative properties of dentition with age (Gonsalves et al. 2008).  With respects to the enamel, many changes can be attributed to the alterations in ion-exchange mechanisms which ultimately decrease tooth permeability. This decrease in permeability and subsequent results ultimately can cause the enamel to become more brittle which makes the enamel more susceptible to mechanical forces (Gonsalves et al. 2008).  Apart from dental structures, wear and attrition can affect tooth morphology and can ensue greater rates of tooth damage (Gonsalves et al. 2008). With these behavioral factors acting in conjunction with the reduced reparative capacity; the reduce protective mechanisms within the oral cavity; as well as morphological changes, the oral cavity in aging adults will ultimately become more susceptible to particular pathologies and damage which the clinician must take into consideration when formulating treatment plans for patients in geriatric populations. |
| **References:** |
| Gonsalves, W. C., Wrightson, A. S., & Henry, R. G. (2008). Common oral conditions in older persons. *American family physician*, *78*(7), 845–852.  P Abdul Razak, K M Jose Richard, Rekha P Thankachan, K A Abdul Hafiz, K Nanda Kumar, K M Sameer  J Int Oral Health. 2014 Nov-Dec; 6(6): 110–116. |