

Results

The prevalence of hyposalivation and xerostomia

Among people in Thailand no normal or abnormal reference values for saliva flow rates have been previously identified. Whereas, in western countries it has been suggested that an unstimulated whole saliva flow rate of < 0.16 ml/min is indicative of salivary gland hypofunction (Navazesh *et al*, 1992). In addition, it has also been proposed that if a patient has an unstimulated whole saliva flow rate ≤ 0.1 ml/min hyposalivation can be diagnosed (Sreebny *et al*, 1988). In order to determine the cut off level for unstimulated whole saliva flow rate, we first divided patients into two groups according to their presence (n=52) or absence of feeling of dry mouth (n=50). The group which had a feeling of oral dryness had a mean value of unstimulated

whole saliva flow rate of 0.17 ml/min. Secondly, we then divided the patients into two groups; a) the flow rate was >0.17 ml/min ($n= 46$) and b) the flow rate was ≤ 0.17 ml/min ($n=56$), and found that the mean values of unstimulated saliva flow rates in group a was statistically significant difference from that of group b ($p=0.0001$). Accordingly, we decided that an unstimulated whole saliva flow rate of ≤ 0.17 ml/min identify patients with hyposalivation. By using this level it has been shown that 23 patients without subjective feeling of dry mouth actually belonged to the group suffering from hyposalivation. These findings confirmed that the absence of complaint of dry mouth does not indicate adequate salivary gland function and vice versa (Fox *et al*, 1985).

Number of patients in different levels of unstimulated and stimulated saliva flow rates are shown in table 4. Table 5 shows means and standard deviations of unstimulated and stimulated saliva flow rate among the subgroups. The relationships between unstimulated saliva flow rate and their counterparts among the patients are shown in table 6. Of interest, 29 out of 39 patients (74.4%) with low unstimulated flow rate (0-0.1 ml/min) had high stimulated flow rate (>0.7 ml/min).

Relationship between salivary flow rate and HIV infection

Concerning the serostatus of the patients, the unstimulated flow rates in the HIV+ and HIV- groups were 0.19 and 0.23 ($p\sim 0.35$), and stimulated flow rates were 1.47 and 1.57 ($p\sim 0.60$). With respect to stage of HIV infection the unstimulated flow rate was significantly higher in the asymptomatic group; 0.32, when compared to the symptomatic and AIDS group 0.13 and 0.16 respectively ($p<0.05$). No significant

difference between the groups could be found with respect to stimulated flow rate. In the same order the mean values were 1.66, 1.36, and 1.45.

Relationship between salivary flow rate and medication

Means and standard deviations of unstimulated and stimulated flow rates in relationship to medication used among the subgroups were determined. No significant difference could be demonstrated between the group with xerostomia inducing drugs and without any medication neither regarding unstimulated nor stimulated flow rates. For unstimulated flow rate the value were 0.20 and 0.28 and for stimulated flow rate 1.74 and 1.56, respectively.

Factors associated with hyposalivation

It was noted that the following factors were significantly associated with hyposalivation (table 7); sex, stage of HIV infection, risk group, systemic disease, smoking habit, and alcohol consumption. Associations between hyposalivation, xerostomia and colony forming unit, presence of oral candidiasis, cervical caries, and number of existing teeth are shown in table 8.

Discussion

Saliva plays a key role in maintaining oral functions and protecting oral tissues (Mandel 1989, Fox *et al*, 1985). Any change in salivary gland fluid secretion or constituent levels may, therefore, reflect alterations in salivary host response mechanisms subsequent to HIV infection and may represent, conceivably, an increased risk to the patient. Systemic disorders and xerogenic medications are