SALIVARY SALICYLATE SECRETION AND FLOW RATE

The use of salivary drug levels is becoming increasingly popular in pharmacokinetic studies and as a measure of drug level in clinical medicine. Salivary salicylate concentrations have been shown to correlate closely with plasma salicylate levels (Graham & Rowland, 1972) and this technique has been applied to the pharmacokinetic study of several aspirin preparations (Paull, Day, Graham & Champion, 1976; Brooks, Roberts & Patel, 1978).

Studies on the effect of salivary secretion rate on salivary drug concentration have been reported for phenytoin (Paxton, Whiting & Stephen, 1977) and antipyrine (Meffin, Williams, Blaschke & Rowland, 1977), but no such study has been reported for salicylate.

Figure 1 The relationship between salivary salicylate secretion and salivary flow rate.

We report a small study performed to assess the effect of salivary flow rate on salivary salicylate concentration in three normal volunteers. Soluble aspirin 1.2 g was taken with 200 ml water and the mouth thoroughly washed out. Two hours later mixed saliva samples were collected over consecutive 5 min intervals for 1 h. Saliva was collected both without stimulation to salivary flow and by chewing a small square of 'parafilm' at varying degrees of intensity. All saliva produced over a 5 min period was collected in a wide-necked bottle. Saliva samples were stored at -20°C until analysed (Graham & Rowland, 1972).

The individual 5 min saliva collections were weighed and converted to volume to obtain the mixed salivary flow rate for each individual collection. The flow rate in the three subjects varied from 0.22 ml/min to 2.05 ml/min and each individual was at least able to triple the salivary flow rate during the period of the study. The plot of salivary salicylate secretion and salivary flow rate for one subject is shown in Figure 1. The good linear correlation between the salivary salicylate secretion rate and salivary flow rate ($r=0.981$) and similar correlations in the other two subjects $r=0.99$ and $r=0.965$ suggest that the concentration of salicylate in mixed saliva is independent of flow rate and supports the use of this simple method of saliva collection in both pharmacokinetic and clinical studies of salicylate metabolism.

M.S. ROBERTS, R.H. RUMBLE &
P.M. BROOKS

*School of Pharmacy and Department of Medicine,
University of Tasmania, Tasmania, Australia*

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