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THE EDENTULOUS PATIENT. I. XEROSTOMIA AND THE SERUM CHOLESTEROL LEVEL

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ABSTRACT: **Sixty-seven edentulous patients with complete dentures were studied during 168 visits. Xerostomia was reported during only 38 of the 168 visits, and in most of these instances it was mild and intermittent; there were no severe cases, and only 5 patients reported that the condition was constant. The serum cholesterol level was definitely elevated (250 mg per 100 ml, or higher) during 42 per cent of the visits, and marginally elevated during another 45 per cent. Statistical analysis showed that the concentration of serum cholesterol was significantly higher in the patients with xerostomia.**

The condition of the saliva plays an important role in the success or failure of dentures. This is the first in a series of reports on edentulous patients with full dentures. It deals with the relationship between xerostomia (dry mouth) and lipid metabolism. An attempt is made to answer the following three questions:

1. What is the frequency and severity of xerostomia in patients with complete dentures?
2. What is the state of lipid metabolism (as judged by serum cholesterol concentration) in this group?
3. Is there any relationship between xerostomia and the serum cholesterol level?

MATERIAL AND METHODS

The study included 67 edentulous patients fitted with complete dentures. Their ages ranged from 15 to 83 years, with a mean and standard deviation of 52.4 ± 12.2 years (Table 1). The 67 subjects were observed one to four times each over a six-week period, for a total of 168 visits (Table 2). The greatest number of patients (37.3 per cent) were observed three times. The frequency and severity of xerostomia were recorded at each examination (Table 3). A blood sample was obtained from the patients (not fasting) at each visit, and serum cholesterol concentration was determined by the method of Zak (1). The values are shown in Table 4.

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TABLE 1
Age Distribution

Age Groups (yrs.)	Number of Subjects	Percentage of Subjects
10-19	1	1.5
20-29	1	1.5
30-39	7	10.4
40-49	12	17.9
50-59	29	43.3
60-69	14	20.9
70-79	2	3.0
80-89	1	1.5
Total	67	100.0
Mean age	52.4	
Standard deviation	12.2	
Age range	15-83	

TABLE 2
Number of Visits per Patient

Number of Visits per Patient	Number of Patients	Percentage of Patients	Number of Visits
1	15	22.4	15
2	15	22.4	30
3	25	37.3	75
4	12	17.9	48
Total	67	100.0	168

TABLE 3
Frequency and Severity of Xerostomia

Scoring System	Frequency		Severity	
	(per number of visits)			
0	none	130	none	130
1	occasional	33	slight	26
2	constant	5	moderate	12
3	unknown	0	severe	0
Total visits		168		168

TABLE 4
Distribution of Serum Cholesterol Values

Serum Cholesterol (mg/100 ml)	Number of Visits	Percentage of Visits
150-199	24	14.3
200-249	73	43.5
250-299	60	35.7
300-399	11	6.5
Total	168	100.0

RESULTS

Frequency and severity of xerostomia

As shown in Table 3, there were no complaints of xerostomia during 130 of the 168 visits; of the 38 times (23 per cent) xerostomia was reported, it was predominantly mild and intermittent; only 5 cases were constant, and none was severe.

Serum cholesterol level

According to the serum cholesterol values shown in Table 4, 14.3 per cent indicated a normal concentration, 45.3 per cent a marginal elevation, and 42.2 per cent a definite elevation. There is increasing evidence (2) that values below 200 mg per 100 ml are physiological, those between 200 and 250 mg per 100 ml marginally elevated, and those above 250 mg per 100 ml definitely hypercholesterolemic. Thus, in our series, only 1 in 6 or 7 values was normal. Definite hypercholesterolemia was observed during 42.2 per cent of the visits.

Xerostomia and the serum cholesterol level

Because of the relatively few patients who reported constant but moderate oral dryness (Table 3), a comparison was made of the serum cholesterol levels in patients without xerostomia versus those with xerostomia. Table 5 shows that the mean serum cholesterol level was significantly higher (statistically) in the patients with dry mouth. It would appear that patients with xerostomia are likely to have hypercholesterolemia.

DISCUSSION

According to a recent review (3), a number of investigators have reported xerostomia in diabetic subjects. In a few reports (3), dry mouth in nondiabetic patients has been correlated with a disturbance in carbohydrate metabolism. As far as can be determined, there are no published reports on the relationship between lipid metabolism and xerostomia. The findings in our study suggest a significant correlation consistent with the concept that a disturbance in carbohydrate metabolism often parallels an imbalance in lipid metabolism.

TABLE 5

Serum Cholesterol Values in Subjects with or without Xerostomia

	Number of Visits	Serum Cholesterol (mg/100 ml)		Significance of Difference of Means
		mean	S.D.	
No dry mouth	130	236.0	40.8	$P < 0.025$*
Dry mouth	38	255.2	43.9	

* Statistically significant.

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