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3903

Mineral Content of Saliva of Children with Arrested Dental Caries.

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Numerous instances of arrested dental caries in childhood have been noted in the routine dental examination of patients in the Children's Hospital during the past 2 years. Such arrest of caries in childhood is decidedly unusual. Correlation of dental findings with hospital records revealed that without exception, each of these children exhibiting arrested caries had diabetes mellitus, and was under strict dietary control. It was further noted that the incidence of salivary calculus was much higher in these patients than in the other patients examined.

The present study was undertaken in order to determine whether or not this arrest of dental caries was associated with alterations in the mineral content of the saliva. One group studied consisted of 17 diabetic children, 15 of whom had been under dietary control for a year or more; the other of 13 non-diabetic patients of similar age. The incidence of dental caries in the non-diabetic group was very high. Of the diabetic children, active caries was noted only in 2 cases whose diabetes was of very recent origin, and in a third child who has not been under satisfactory dietary control.

Whole saliva was collected before breakfast, without stimulation of the glands and without water drinking. The chloride content was determined by Van Slyke's method, pH by the method of Clark and Lubs. Calcium and phosphorus were determined on ashed saliva, following the technique of Clark and Levine. The analytical results are summarized in the accompanying table. A high phosphorus value was frequently, but not invariably, accompanied by a high calcium value. When unusual values for calcium and phos-

phorus were found in saliva, blood determinations were likewise made, but in no case were abnormal findings noted.

SUMMARY OF SALIVARY ANALYSIS.

| | Diabetic | Non-diabetic | | Diabetic | Non-diabetic |
|------------|----------|--------------|----------|----------|--------------|
| | mg. % | mg. % | | mg. % | mg. % |
| Calcium | | | Chlorine | | |
| High | 7.75 | 7.73 | High | 90.8 | 83.0 |
| Low | 3.7 | 2.8 | Low | 47.4 | 30.6 |
| Mean | 5.7 | 5.5 | Mean | 69.6 | 55.0 |
| Phosphorus | | | pH | | |
| High | 17.8 | 16.6 | High | 7.0 | 7.3 |
| Low | 8.7 | 7.1 | Low | 6.3 | 6.3 |
| Mean | 12.1 | 11.5 | Mean | 6.8 | 6.9 |

The wide individual variations in mineral content of saliva noted in this study were also observed by Clark and Levine¹ in the saliva of adults, although the phosphorus values obtained by them appear to average slightly higher than those noted in this series.

Summary: The mineral content of saliva was studied in 2 groups of patients; one of diabetic children having resistant teeth and arrested caries, the other of unselected hospital patients showing as a group marked caries and soft teeth. The variations noted in the calcium, phosphorus, chlorides and pH of the saliva were similar in both groups, indicating that the formation of salivary calculus, and the arrest of dental caries noted in the diabetic children under dietary control, are probably not due primarily to any marked differences in the mineral content of the saliva.

¹ Clark and Levine, *Am. J. Physiol.*, 1927, lxxxi, 264.

3904

Relief of Parathyroid Tetany by Injections of Uranium Nitrate.

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Recent studies from this laboratory^{1, 2} have shown that slight changes in the acid-base equilibrium, with a shift in the reaction of the blood toward the acid side, exert a profound effect upon the tetany of parathyroid insufficiency.

The writer and his collaborators have shown that asphyxiation by CO₂ of dogs presenting violent tetany promptly brings about