

An evaluation of unmedicated chewing gum in the prophylaxis of infections in children

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CHEWING GUM IS MADE FROM chicle, the sap of the sapodilla tree. Neither nutritive nor medicinal value have been claimed for the product, which has been used primarily for its psychologically satisfying qualities—more readily acceptable to children than to adults. The author considered the hypothesis that regular movements of the masticatory mechanism on either side of the oro-pharyngeal region might assist in the maintenance of a healthy state by encouraging a more effective blood supply. This, in turn, could result in the tissues, at this often sensitive area in childhood, being maintained in optimal condition to resist and combat infecting organisms.

It was decided to institute a clinical trial to attempt an evaluation of the efficacy of plain, unmedicated, commercial chewing gum being regularly chewed over a winter season, in reducing the incidence of certain infections in the circum-pharyngeal and related regions in children with a known propensity to such conditions. The clinical diagnoses of upper respiratory tract infection, tonsillitis, pharyngitis and otitis media would constitute the criteria, no bacteriological examinations being made.

Method

The trial took place in a group practice of 16,000 patients in Boreham Wood, Hertfordshire. During the period, 1 October 1969 to 31 March 1970 all episodes of upper respiratory tract infection, tonsillitis, pharyngitis and otitis media seen in children aged between 5 and 11 inclusive were tabulated. The patients were unaware of this enumeration. Of these children, all who had suffered more than one episode during the limiting period were considered to be at risk and were included in the trial, which took place during the following winter.

By a random process of selection, one half of the at risk group were invited, late in the summer of 1970, to attend the surgery with their parents. A nursing sister explained that they could participate in a clinical trial to determine whether chewing this gum regularly would help reduce the incidence of colds, sore throats and bad ears.

The children were requested to chew one stick regularly every day, for the period of the trial, on four occasions—after breakfast, lunch and tea and before bedtime—for at least five minutes. Sufficient gum was supplied to each child at regular intervals during the autumn and winter of 1970–71. Each stick was in a plain wrapper, labelled “the chewing gum”, and presented in boxes containing one week’s supply, labelled only with the chewing instructions. Neither children nor parents were informed of the ingredients in the gum but those who asked (a very small number) were assured that no antibiotic was present. The gum was standard commercial chewing gum, provided by the manufacturer in specially produced containers.

The control half of the at risk group were allowed to remain unaware of our interest—but were followed on their medical records.

During the period 1 October 1970 to 31 March 1971, note was taken of all episodes of the same group of diagnoses in all the at risk children, the classification of whom was unknown to the doctors in the practice.

Results

During the winter of 1969–70, 588 consultations took place with the specified diagnoses. Of these, 328 episodes occurred in a child on one occasion only, 84 children had two episodes, 16 had three, seven had four, two had five, and one child was tabulated six times. The one-episode only group were discarded from the trial. The remaining 110 constituted the at risk group.

Of the 55 children invited to participate in the trial, 15 defaulted for various reasons (parental disinclination, removal from the district and, in one sad case, accidental death). Consequently, 15 children were removed (at random) from the control group.

TABLE I
RESULTS

	<i>Chewers</i>				<i>Controls</i>		
	<i>Numbers of children</i>	<i>Diagnostic episodes 1969-70</i>	<i>Diagnostic episodes 1970-71</i>		<i>Numbers of children</i>	<i>Diagnostic episodes 1969-70</i>	<i>Diagnostic episodes 1970-71</i>
	13	2	0		9	2	0
	11	2	1		8	2	1
	4	2	2		10	2	2
	2	3	0		4	2	3
	1	3	1		2	2	4
	1	3	2		2	3	0
	1	3	3		1	3	3
	2	3	4		1	4	0
	1	3	6		2	4	1
	1	4	0		1	5	2
	2	4	3				
	1	4	4				
Totals ..	40	96	49	Totals ..	40	92	55

Discussion

Of the group of 80 children, already shown to be more prone to upper respiratory tract infections, tonsillitis, pharyngitis and otitis media than the majority of their peers, the 40 regularly chewing plain, unmedicated gum showed an improvement from 96 to 49 episodes of diagnosis. The 40 controls improved from 92 to 55. Although statistically the improvement of the chewers over the controls is not significant, giving a probability of one in six, those children who chewed showed an improvement almost one tenth greater than those who did not. It will be noted that the winter 1970-71 was markedly mild in south-east England and was accompanied by a generally recognised reduction in morbidity in this area of pathology.

An interesting feature of the table is the degree of variability in episodes shown by some children, clearly unrelated to the general trend. In addition to climatic changes and the possibility of increased resistance produced by masticatory movements, other factors must be involved. These may include the family dynamics and educational pressures. Similarly, in the group of chewers, it must be accepted that some degree of improvement could be attributable to the psychological factors inherent in both their original interview and the repeated doses of what to them may have represented some esoteric treatment. The fact remains, however, that some appreciable improvement was shown in this small series of chewers over the controls.

The results suggest that it would be worthwhile instituting further studies along these lines, possibly with the measurement of more variables and certainly with larger numbers of susceptible children, preferably on a multi-centre basis and with scientific measurements of both the diagnostic criteria and the related variables.

Summary

A clinical trial is reported to determine the effect of regular chewing, throughout a winter season, of unmedicated commercial chewing gum on a group of children with a higher incidence of certain infections related to the upper respiratory tract than the average. These were compared with a similar group of non-chewers, to discover whether there was any reduction in the incidence of infection. The results are discussed.

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