

Occurrence of recurrent herpes labialis in an adult Swedish population

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In a general adult Swedish population recurrent herpes labialis (RHL) was found in 3.1% of 20,333 people aged 15 years and more. When a 2-year history of RHL was considered, the total prevalence was 17.4%. There was a slight predominance among women. Only slight differences were found between various age groups. In a fraction of the population studied, constituting 2771 people, interviews concerning cases of RHL were carried out. Thus, for example, most individuals referred to only one herpes episode a year; the most prevalent site of eruption was an area comprising both the vermilion border and the skin, and most of the lesions showed healing times of 5–8 days. The prevalence of RHL was influenced by some tobacco habits. Thus, the prevalence was significantly lower among smokers, and especially among pipe smokers, than among people with no tobacco habit at all. Snuff dipping did not seem to influence the prevalence values. □ *Epidemiology; tobacco habits; viral infection*

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Recurrent herpes labialis (RHL) is characterized by the presence of prodromal symptoms, such as a feeling of numbness, itching, and pain, followed by the development of vesicles and crusts and, finally, healing within 1–2 weeks.

Several studies have been carried out on the prevalence of RHL. Ship et al. (1, 2) reported prevalence figures of 38.2% and 31.5% among students and 44.6% among hospitalized patients. Embil et al. (3), in a worldwide interview, registered 33.2% among men and 28.0% among women in a population of 635 armed-forces recruits and 9897 health-profession students on 6 continents. They reported prevalence figures of 31.1% and 30.7% among European men and women, respectively. Young et al. (4) reported 16.3% among students and 30.7% in faculty staff members at a dental school.

In an adult Swedish population Axéll (5) found a prevalence of 17.4% during a 2-year period. At the time of examination 3.1% of the subjects showed lesions. The aim of the present study was to elucidate the demographic aspects of RHL patients by data compiled from the investigation of Axéll (5).

Materials and methods

From a total population of 30,118 individuals, living in a medium-sized city and in a rural area in the central part of Sweden, 20,333 were examined for oral mucosal lesions and also for recurrent herpes labialis. All subjects were 15 years or more. The selected area showed similar characteristics as Sweden at large with regard to the male/female ratio, average age, age distribution, proportion of foreign citizens, and proportions of denture wearers and habitual smokers. Population density was somewhat higher and the proportion of people living in densely populated areas somewhat lower than in Sweden at large (See Ref. 5, Table 12).

In a primary investigation, to which the total population was summoned, 18,659 attended and were examined. In a second investigation, to which every fifth individual of the primary non-participants was selected, 1674 more persons were examined. From the standpoint of frequency of participation, 89.6% of the total population was thus examined provided the individuals of the second

Table 1. Number of people examined

	Men	Women	Total	Average age (years)
Total investigation	10,036	10,297	20,333	43.0
No. selected for inquiry	1,326	1,445	2,771	36.9

investigation were weighed by a factor of five—that is, the proportion of selection.

Lesions present at the time of examination (current lesions) and information on the history of previous lesions were registered. Clinical criteria for current herpes lesions were as follows: clusters of vesicles and/or crusts on or adjacent to the vermilion border of the lip, not involving the moist mucosa; a history of recurrence; and a healing time in previous lesions not exceeding 4 weeks. These criteria are roughly in agreement with those described by Ship et al. (1) and Graykowski et al. (6).

Previous occurrence of lesions was labeled 'history of herpes labialis', and the criteria were as follows: the lesion of herpes labialis, as described by words and color pictures, was well recognized by the patient, who had had the condition at least once during the past 2 years; there was a history of recurrence, and the healing time of the lesions did not exceed 4 weeks. At the time of examination no herpes labialis lesion was present. These criteria are roughly in agreement with those described by Ship et al. (1).

For a fraction of the population, 2771 individuals (Table 1), a detailed inquiry on experience with herpes labialis was performed. These subjects were the first 2771 consecutive people examined and lived in one parish, where sufficient resources were available for detailed questioning. The inquiry consisted of filling out a questionnaire with the assistance of trained personnel. Among the questions asked were duration and healing time of lesions and the most frequent location on the lips. Tobacco habits were also registered on a questionnaire (5).

The reliability of the clinical registrations

was assessed by reexamining 256 people. Among these, 9 showed current lesions, and 43 gave a positive history of RHL at the first examination. The corresponding figures registered at reexamination a few days later were 9 and 42. The 9 persons with current herpes lesions were the same at both examinations, and 38 persons gave identical answers on both occasions with regard to history. The probability of a diagnosis being registered at both examinations if it was registered at either one of them was 1.00 for current lesions and 0.81 for a history of RHL.

Concerning the reliability of answers to questions on tobacco habits, questioning was carried out. About 2 weeks after the first questioning 278 individuals were asked the same questions again. Out of 261 individuals who claimed unchanged tobacco habits and consumption, 252 (97%) gave the same and 9 (3%) gave divergent information at the two occasions. On the other hand, of 17 individuals who claimed to have changed tobacco habits or consumption, 4 (24%) gave the same and 13 (76%) gave divergent information.

Calculation of prevalence and testing for differences between groups of subjects were done as described by Axéll (5).

Results

The prevalence of current herpes lesions was 3.1%. A further 14.4% of the population had experienced RHL during the last 2-year period and had no lesions at the time of examination. The accumulated prevalence was approximated to 17.4%. As can be seen in Table 2, the prevalence of current lesions and of a history of herpes labialis were rather evenly distributed among the different age groups. It was highest in the 35- to 44-year age group—20.2%—and lowest in the youngest age group, 15–24 years—15.0%. There was a predominance of the lesions among women ($P < 0.001$).

Information from the inquiries and questionnaires showed that about 50% experienced RHL once a year and that about 25% had lesions 5–11 times a year. Eight per cent claimed that they had lesions at least once a

Table 2. Prevalence (percentages) of RHL—both current lesions and a 2-year history of the condition, among 20,333 individuals, by age and sex

Age, years	Men	Women	Total	Significance*	Current lesions, total	History of herpes labialis, total
15–24	14.0	16.2	15.0	NS	2.1	12.9
25–34	15.3	16.3	15.8	NS	3.3	12.5
35–44	17.7	22.7	20.2	$P < 0.05$	3.8	16.6
45–54	19.9	19.3	19.6	NS	3.7	16.0
55–64	15.4	22.4	18.9	$P < 0.001$	2.8	16.1
65–74	14.5	21.1	18.0	$P < 0.05$	3.3	14.8
≥75	15.9	15.1	15.3	NS	2.7	12.6
Total, %	16.0	18.7	17.4	$P < 0.001$	3.1	14.4
Total, n	1,573	1,920	3,493		652	2,841

* NS = not significant.

month (Table 3). There was a slight tendency for the women to have more frequent episodes than men. The healing time, as described by the patients, is accounted for in Table 4. Healing time was most frequently reported to be 5–8 days (in 47.8% of the cases). There was a tendency towards longer healing times for women than for men. For both sexes, however, the large majority of the subjects stated healing times between 3 and 13 days. The location of RHL lesions is listed in Table 5. The ratio of lesions on the vermilion border and on the skin was very close to 1:1. Lesions seemed to be somewhat more prevalent on the upper lip than on the lower lip, and this was valid for both the vermilion border and the skin.

In Table 6 frequencies of RHL are shown for groups of people with various tobacco habits. People with mixed habits are not included. There was a significantly lower prevalence of RHL among people with

Table 4. Distribution of RHL by healing time, percentage

Healing time, days	Men	Women	Total
1–2	5.9	2.2	3.9
3–4	25.8	13.8	19.3
5–8	44.1	50.9	47.8
9–13	14.0	21.0	17.8
14–21	8.6	8.5	8.5
>21	1.6	3.6	2.6

Table 5. Distribution of herpes labialis lesions at the time of examination

Location	Percentage of total number of locations with lesion*
Vermilion border	
Upper	30.4
Lower	24.6
Vermilion border, total	53.2
Skin of lips	
Upper right	7.0
Upper left	9.0
Philtrum	8.3
Skin of upper lip, total	22.2
Right commissure	10.4
Left commissure	9.3
Commissures, total	19.3
Skin of lower lip, total	17.0
Skin of lips, total	56.3

* Some subjects had lesions in more than one location.

Table 3. Distribution of RHL by frequency of episodes, in percentage

Frequency	Men	Women	Total
>1/month	—	1.3	0.7
1/month	5.4	8.5	7.1
5–11/year	26.9	22.8	24.6
1–4/year	55.9	56.3	56.1
<1/year	11.8	11.2	11.5

Table 6. Number of people and frequencies of RHL among individuals with different tobacco habits

Habit	With or without habit		With or without habit and with herpes labialis	
	<i>n</i>	%	<i>n</i>	%
1. Some tobacco habit	8,048	39.6	1,310	16.2
2. Smoking	6,599	32.5	1,095	16.6
3. Cigarette smoking	5,238	25.8	885	16.9
4. Moderate cigarette smoking*	3,995	19.6	688	17.2
5. Heavy cigarette smoking†	1,243	6.1	197	15.8
6. Pipe smoking	769	3.8	108	14.0
7. Moderate pipe smoking‡	505	2.5	71	14.1
8. Heavy pipe smoking*	264	1.3	37	14.0
9. Snuff dipping	877	4.3	137	15.6
10. Other and mixed tobacco habits	1,528	7.5	258	16.9
11. No tobacco consumption	10,757	52.9	1,919	17.8
Total	20,333	100	3,487	17.4

* 15 or fewer cigarettes a day.

† More than 15 cigarettes a day.

‡ 50 g or less of tobacco a week.

§ More than 50 g of tobacco a week.

Chi-square values and *P* values when testing between groups with various habits (NS = not significant): 1–11 = 7.900, *P* < 0.01; 2–11 = 4.426, *P* < 0.05; 3–11 = 2.170, NS; 6–11 = 7.133, *P* < 0.01; 9–11 = 2.837, NS; 4–5 = 0.523, NS; and 3–6 = 3.952, *P* < 0.05.

tobacco habits (*P* < 0.01), and this was especially so for pipe smokers (*P* < 0.01). Thus, pipe smoking seemed to be associated with a significantly lower prevalence of RHL than cigarette smoking (*P* < 0.05). On the other hand, there was no statistically significant difference in the prevalence of herpes labialis between those who regularly used snuff and those who had no tobacco consumption at all (*P* > 0.05).

Discussion

In previous studies there has been remarkably divergent information on the prevalence of RHL. The reason for this may be manifold. These studies have almost exclusively been carried out in selected groups of people, such as students, staff members, and hospitalized patients. It might very well be that various groups of people carry different susceptibilities to episodes of RHL. Thus, it has been suggested that episodes are triggered by factors such as psychic stress and actinic radiation (2, 4, 7). Another expla-

nation of the difference might be differences in age distributions. In the present investigation, however, the prevalence of RHL differed only slightly between different age groups.

In most previous investigations the collection of information on RHL has included life-time experience. In the present study only individuals who referred to at least one episode during the past 2 years were registered. This latter estimation was thought to better reflect the actual occurrence of the disease in the population and also to provide a better basis for estimating treatment need than a life-time history. However, it also gives lower prevalence figures, since the time of accumulation is comparatively short.

The characterization of RHL by duration, frequency, and healing time was in good accordance with previous findings or statements (1, 8).

The distribution by location showed a somewhat different pattern than in some other studies. In the present study the lesions seemed to be somewhat more prevalent on the upper lip than on the lower one, which

is in slight contrast to the findings by, for instance, Young et al. (4) and Bader et al. (9).

Tobacco smoking seemed to have some influence on the prevalence of RHL. Thus, smokers had low prevalence values. It has been suggested that tobacco products may influence virus replication, contributing to the development of malignant tumors in animals (10, 11). However, those studies were carried out with smokeless tobacco. In the present study smokeless tobacco did not seem to influence the prevalence of RHL.

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