Brief Report

The Prevalence of Oral Aphthosis in a Normal Population in Iran: A WHO-ILAR COPCORD Study

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This study was conducted to determine the prevalence of oral aphthosis in a normal population in Iran, using the data of the WHO-ILAR COPCORD study in Iran. We conducted this study in Tehran, the capital of Iran which was selected as the COPCORD study field.

In 22 districts of Tehran, 50 clusters were randomly selected. Of the selected houses, 4,096 households were visited and 10,291 persons were interviewed (response rate of 75%). Out of the 10291 subjects interviewed, 2592 had aphthous ulcers which translated to a prevalence of 25.2% (95% confidence interval: 24.4% to 26.0%). The prevalence of oral aphthosis was rather high in this normal population.

Introduction

Oral aphthosis is the most frequent manifestation of Behçet's disease. It is the constant criterion used in all different sets of criteria used for the diagnosis of Behçet's disease.[1,2] It is, therefore, important to know the prevalence of oral aphthosis in the general population.

The prevalence of oral aphthosis in the general population of Iran was estimated to be 20.7% [95% confidence interval (CI): 18.5% to 22.9%] from a large cohort of patients.[3]

While planning the WHO-ILAR COPCORD study for Iran, it was decided that necessary questions be added to the COPCORD core-questionnaire to find out a more accurate estimate

of the prevalence of oral aphthosis in the general population in Iran. The Rheumatology Research Center (RRC) of Tehran University of Medical Sciences undertook the project, supported by a grant from Tehran University of Medical Sciences. The number of interviews was set to 10,000 to achieve a more accurate estimate of the prevalence of rare inflammatory disorders in Iran.

The objective of this study was, therefore, to determine the prevalence of oral aphthosis in a normal population in Iran.

Materials and Methods

The field

The city of Tehran, the capital of Iran, was selected as the field for the COPCORD study. The rationales for this selection were:

Ethnic distribution

Tehran contains nearly one-tenth of Iran's population. The population is of mixed origin and

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represents all ethnic groups. The majority of its population is composed of immigrants, coming from all parts of Iran. No other city represents Iran as Tehran does.

Goal of 10000 subjects

To interview nearly 200 subjects a week, a large team was needed. This team had to comprise interviewers, several rheumatologists for the clinical examination in the field, technicians for blood sampling, and the necessary support personnel. Such a team was only feasible in Tehran.

All interviews and medical examinations were to be reviewed by one of the RRC staff professors, and in case of any doubt, the patient had to be re-examined by one of them.

Random sampling of houses

This part was done with the help of the Iranian Post Office Organization. Fifty clusters were randomly selected from the 22 districts of Tehran. Samples were selected as consecutive houses from the first cluster head and the followings on its right side.

Selection and training of the interviewers

The interviewers were chosen from certified nurses or nurse-midwives. They were trained at a workshop with training objectives of rheumatic diseases, the known epidemiologic data in Iran, the COPCORD history and its concepts, how to interview subjects, and the relevant questionnaire. The interviewers were tested by interviewing a selected number of subjects. The observed agreement among the interviewers in screening the subjects with COPCORD Core Questionnaire and reporting them as positive patients was 0.96; the kappa coefficient was 0.919 with a standard error of 0.112.

Questionnaire

The original questionnaire was translated from English to Persian by a rheumatologist not involved in the project. The Persian version was given to another rheumatologist who was unaware of the original English questionnaire. He then translated it back to English. Comparison of the original and the back translated questionnaire showed no significant differences.

Data entry and quality control

All data were entered into the software. At the end of each day of data entry, 5% of the data were rechecked for the purpose of quality control. The overall reported errors were <1%.

Pilot study

To test the feasibility of the project, a pilot study was undertaken. This was started on October 3, 2003. Five teams participated in the pilot study. Each team was composed of a team supervisor, three interviewers, one rheumatologist, one laboratory technician for blood sampling, two cars, and two drivers. Five districts of Tehran were selected randomly. One hundred and sixty-eight houses were visited, and 284 interviews were completed.

Schedule

On each Monday, a target cluster was visited by the team supervisor and one assistant. They identified the houses to be visited and pinned up the COPCORD posters. The COPCORD study and its objectives had been introduced to the public through the mass media. On Wednesday, the team supervisor and three interviewers went again to the same neighborhood and completed the family folders forms. On Friday, the teams went to their respective assigned neighborhood. They went to the same neighborhood three consecutive Fridays to collect data from those who were absent the previous Friday. From each cluster, 95 to 100 households (according to the population density) were included in the study.

Measurements

The trained interviewers asked the participants whether they had oral ulcers or oral aphthosis at the time of the interview or before. The interviewers described the aphthosis as a round painful ulcer with a white/ yellow center. All subjects who complained of current aphthosis or oral ulcers were examined by the team rheumatologist.

Data analyses

The point prevalence of oral aphthosis was quantified and reported by age and sex. Data was weighted according to the weight of population of Tehran at the 1996 national census and also set for a survey data considering 50 districts as clusters. Stata (version 8) was used for data analyses.

Results

General data

With a maximum of three visits per house, we reached a response rate of 75%; 4096 houses were visited and 10291 persons were interviewed. The male:female ratio was 0.9:1 (47.4% males, 52.6% females). The ethnic distribution is presented in Table 1. Table 2 shows the age distribution of the participants.

Oral aphthosis

Of the 10291 subjects interviewed, 2592 had aphthous ulcers at some time in the present or past. The prevalence was 25.2% (95% CI: 24.4% to 26.0%). Among these cases, there were 1061 men (10.3%, CI: 0.6) and 1531 women (14.9%, CI: 0.7). In terms of age, 1206 (11.7%) cases were 15 – 29 years old, 876 (8.5%) were 30 – 44, 358 (3.5%) were 45 – 59, and 152 (1.5%) were ≥60 years old. After applying age adjustments, the percentages for these age groups were 29.5%, 27.7%, 19.4%, and 12.7%, respectively.

Discussion

The prevalence of oral aphthosis is rather high in the normal population, in contrast to genital ulcers. The prevalence of oral aphthosis in this study was 4.5% higher than that estimated earlier in a large cohort of patients in Iran.[3] When compared with other studies, figures were around the same value. In Kuwait, it was 27%,[4] and in Turkey it was 25.5%.[5] In Sweden the rate was 17.7%.[6] The real difference was with a US study, which was conducted on professional school students from the University of Pennsylvania.[7] The figures were 48.3% in men and 57.2% in women. The authors concluded that the age range studied was one during which aphthous ulcers are most seen. Our study showed that the prevalence of oral aphthosis in young people is higher than that in older ages. After adjustment for the number of persons in their respective age group, this difference still existed, but was less striking. The estimated prevalence rates of oral aphthosis,

Table 1. Ethnic distribution of the study participants.

Ethnicity	Frequency (%)
Caucasian	71.4
Turk	23.1
Semite	0.34
Mixed origin	5.2

Table 2. Age distribution of the study participants.

Age (yr)	Frequency (%)
15 – 19	13.4
20 – 29	26.4
30 – 39	21.4
40 – 49	17.4
50 – 59	9.9
60 – 69	6.7
70 and over	4.9

however, very different, varying from 2 – 50% in the general population,[8] with most studies reporting rates from 5 – 25%.

The COPCORD study was done on subjects older than 14 years (15 and over). Therefore, the result of the COPCORD study in Iran may not show the real prevalence of oral aphthosis in the general population.

The prevalence of oral aphthosis in Iran in population of 15 and over is 25.2%. This figure is in the middle of what is reported worldwide, 2%-50%. Oral aphthosis in Iran was found to be higher in the present study than that estimated earlier in a cohort of patients.[3]

References

1 International Team for the Revision of the International Criteria for Behcet's Disease (ITR-ICBD). Evaluation of the International Criteria for Behcet's Disease (ICBD). 12th International Conference on Behcet's Disease 2006, Lisbon (Portugal), Abstract B4.

2 International Team for the Revision of the International Criteria for Behcet's Disease (ITR-ICBD). Revision of the International Criteria for Behcet's Disease (ICBD). 12th International Conference on Behcet's Disease 2006, Lisbon (Portugal), Abstract B10.

3 Chams-Davatchi C, Davatchi F, Shahram F, Akbarian M, Nadji A, Gharibdoost F, et al. Familial oral aphthosis in general population as compared to Behcet's disease. In: Bang D, Lee E.S, Lee S, eds. *Behcet's Disease*. Seoul, Korea: Design Mecca Publishing; 2000: 644 – 645.

4 Fahmy MS. Recurrent aphthous ulcerations in a mixed Arab community. *Community. Dent Oral Epidemiol*. 1976; **4:** 160 – 164.

5 Cicek Y, Canakci V, Ozgoz M, Ertas U, Canakci E. Prevalence and handedness correlates of recurrent aphthous stomatitis in the Turkish population. *J Public Health Dent*. 2004; **64:** 151 – 166.

6 Axell T, Henricsson V. The occurrence of recurrent aphthous ulcers in an adult Swedish population. *Acta Odontol Scand*. 1985; **43:** 121 – 125.

7 Miller MF, Ship II. A retrospective study of the prevalence and incidence of recurrent aphthous ulcers in a professional population, 1958 – 1971. *Oral Surg Oral Med Oral Pathol*. 1977; **43:** 532 – 537.

8 Ship JA, Chavez EM, Doerr PA, Henson BS, Sarmadi M. Recurrent aphthous stomatitis. *Quintessence Int*. 2000; **31:** 95 – 112.