

How often do normal persons sneeze and blow the nose?*

Bjarne Hansen¹ and Niels Mygind²

¹ Otopathological Laboratory, Department of Otorhinolaryngology, Rigshospitalet, Copenhagen, Denmark

² Department of Respiratory Diseases, Aarhus University Hospital, Aarhus, Denmark

SUMMARY

Rhinitis is defined as an inflammatory disease, but in clinical practice the diagnosis is based on the occurrence of nasal symptoms. As all persons occasionally sneeze and blow the nose, it is necessary to define what is normal. In this study the daily number of sneezes and of nose blowing were recorded in diary-cards over a 14 day period by 80 hospital employees and medical students, who considered themselves not to suffer from rhinitis. The results showed that more than 95% of the normal persons sneezed and blew the nose less than 4 times a day, on average. It is concluded that it is normal to sneeze and blow the nose less than 4 times daily while a higher number can be a sign of rhinitis. It is recommended that counting of sneezes and of nose blowing is used in clinical trials in order to define the study population. Together with an objective measurement of nasal patency this can be useful in defining the effect profile of different types of treatment.

Key words: rhinitis, nose blowing, sneezing

INTRODUCTION

Rhinitis means inflammation of the nasal mucous membrane. As inflammation cannot be shown in daily clinical work, the diagnosis of rhinitis is based on the occurrence of rhinitis symptoms, which are sneezing, nose blowing and nasal blockage. As all persons occasionally have these symptoms, i.e. symptoms of rhinitis, it is necessary to define what is normal in order to make a proper diagnosis of rhinitis. To our knowledge there are no published data on how many times normal persons sneeze and blow the nose. In the present study we have tried to answer this question.

MATERIAL AND METHODS

Study population

Eighty adult persons, working at the University Department of Otorhinolaryngology, Rigshospitalet, Copenhagen, Denmark, and medical students volunteered for the study. Their mean age was 39 years (range 22-65). Forty were females and 40 males. The study persons did not consider themselves as suffering from a nasal disorder and they had not received anti-rhinitis treatment. They had a normal anterior rhinoscopy except one who was excluded due to small asymptomatic polyps. During the study period they did not have common cold symptoms. The study was performed in July and August, i.e. in the summer time when the day temperature is about 20°C.

Method

All persons carried a diary card in which they currently recorded the number of sneezes and of nose blowing over a 14 day period.

RESULTS

All 80 persons filled in the diary cards over the 14 day study period and were included in the evaluation.

The majority of persons (59%) sneezed on average (mean) less than once daily, while 31% sneezed once or more times but less than 4 times a day. Only 2 persons (2,5%) sneezed more frequently (4 and 6 times, respectively). The daily mean number of sneezes in all persons was 1.2 (Figure 1).

The majority of persons (59%) had on average (mean) less than one nose blowing daily, while 38% blew the nose once or more, but less than 4 times a day. Only 3 persons (3,8%) had more nose blowing (5, 6 and 12, respectively). The daily mean number of nose blowing in all persons was 1.3 (Figure 2).

Thus, more than 95% of the volunteers had less than 4 sneezes and 4 times nose blowing per day. Only one person had both an abnormal number of sneezes (6) and of nose blowing (12). There was no difference between females and males.

DISCUSSION

Defining rhinitis is a problem in clinical practice and in particular in clinical trials. In clinical practice, the diagnosis is made when a person presents in the doctor's office requiring treat-

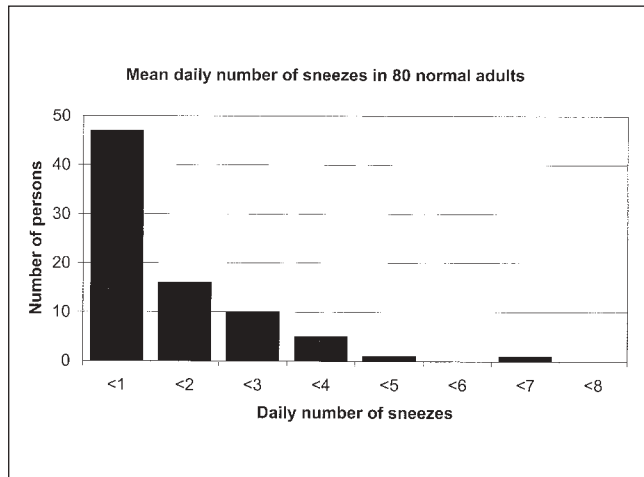


Figure 1. Mean daily number of sneezes over a 14 day period in 80 normal adult persons.

ment for sneezing, nose blowing and nasal blockage. In clinical trials, a diagnosis of allergic rhinitis is based on symptoms and a positive allergy test. In perennial non-allergic rhinitis, the diagnosis is exclusively based on the patient's symptoms. An evaluation of disease severity is usually made by a scoring system, in which the patient gives a symptom score from 0 to 3 for each symptom. Obviously, this way of making the diagnosis and assessing severity is unsatisfactory, as it exclusively depends upon the patient's perception of the symptoms. It is highly variable whether a patient considers the symptoms as normal or abnormal, or as mild, moderate or severe.

In a consensus report on rhinitis, Lund and coworkers (Lund et al., 1994) defined rhinitis as 2 or more symptoms (sneezing, nasal discharge and blockage) lasting for more than 1 hour on most days. Based on the present study, this recommendation seems relevant but strict, as it takes considerably shorter time to sneeze and blow the nose less than 4 times.

In the present study, the numbers of sneezes and of nose blowing were lower than expected. However, the study was performed in the summertime in a population, not exposed to air pollution at work. In the winter time, nose blowing is more frequent due to the stimulation of nasal cholinceptors from cold air (Østberg et al., 1987), and intake of hot spicy food can also increase the number of nose blowing (Østberg et al., 1987). Counting of the number of sneezes and nose blowing can be used in studies of the influence of air pollution on nasal symptoms, and for diagnosing occupational rhinitis.

In three rhinitis trials and in one nasal polyp trial we have asked the patients to record the daily number of sneezes and of nose blowing in a similar way as in the present study. In a study of patients with perennial rhinitis (Wihl et al., 1985), the average number of daily sneezes (median) was 5.4 and of nose blowing 10.1. Treatment with intranasal corticosteroid reduced the numbers to 0.6 and 3.5, respectively. Thus, intranasal corticosteroid normalized the number of sneezes but not the number of nose blowing. In another study of

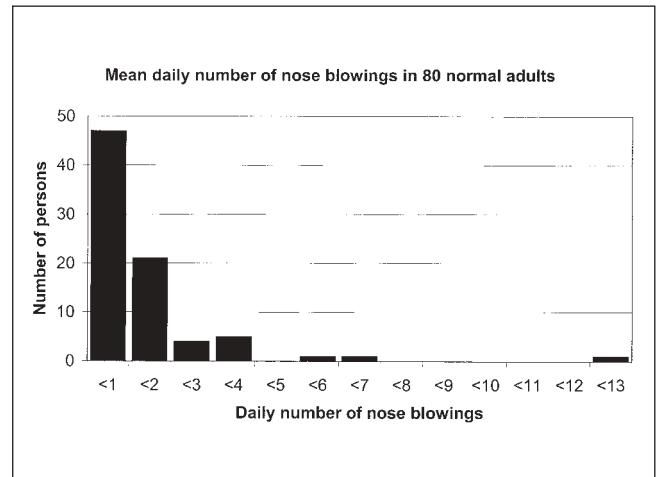


Figure 2. Mean daily number of nose blowing over a 14 day period in 80 normal adult persons.

patients with perennial non-allergic rhinitis and watery rhinorrhea as the dominant symptom (Kirkegaard et al., 1987), the average number of nose blowing was 17.5 (median) and 31.5 (mean) (range 3.6 to 373). Intranasal ipratropium bromide (80 mg qid) reduced these values to 9.3 and 17.6. Thus, ipratropium bromide merely reduced the number of nose blowing.

In a study of seasonal allergic rhinitis (Borum et al., 1987), the daily number of sneezes and of nose blowing was 10-15 at the peak of the pollen season. However, an oral antihistamine was used as rescue medication. Systemic corticosteroid (one intramuscular injection of 80 mg methyl prednisolone) had a marked effect on symptom scores for nasal blockage and a slight effect on symptom scores of sneezing and nose blowing. However, there was no difference between active and placebo treatment, when the number of sneezes and of nose blowing were counted. This discrepancy between results of symptom scores and of absolute numbers of sneezes and nose blowing indicates that the observed effect on symptom scores may be a "carry-over" effect from nasal blockage scores. Thus, counting of sneezes and of nose blowing seems necessary for obtaining a precise evaluation of a drug effect on specific symptoms. In this study, the poor or absent effect on sneezing and nose blowing from systemic corticosteroid treatment was probably due to a higher usage of antihistamine rescue medication during placebo treatment than during active treatment. In a study on nasal polyposis (Toft et al., 1982), the mean number of sneezes was 4.2 and of nose blowing 15.8. Intranasal corticosteroid treatment reduced the mean numbers to 1.5 and 6.0.

The results in the present study, compared with the three clinical trials, indicate that patients, participating in rhinitis trials, have considerably more sneezes and nose blowing than persons, who consider themselves to be normal. However, symptom severity varies very much from patient to patient (e.g. from 3.6 to 373 nose blowing a day).

We can conclude that >95% of adult persons, considering themselves as nasally healthy, on an average sneeze and blow the nose less than 4 times a day. More symptoms may by the person be considered as being normal or abnormal based on personal experience and perception of normality. However, a therapeutic attempt with antihistamine or nasal corticosteroid may be worth while in such persons in order to define their optimal nasal condition. This applies especially to children, who often accept a clear pathological condition as being normal and acceptable, because they have never experienced "a normal nose".

In order to define a study population in a clinical trial we recommend that the patients in a run-in period count the number of sneezes and of nose blowing. A quantitative and objective evaluation of symptoms (number of sneezes and nose blowing, objective measurement of nasal patency) may also be necessary for defining the effect profile of different types of treatment. When handy symptom cards are made, it is our experience that patients will accept this detailed symptom scoring. In one study, our patients counted the number of sneezes and nose blowing daily for 3 months (Wihl et al., 1985). It is questionable, however, whether a detailed symptom recording gives a better distinction between active and placebo treatment than a simple scoring system (0-3), while it is time consuming to compile the data.

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Niels Mygind
 Department of Respiratory
 Diseases
 Aarhus University Hospital
 DK-8000 Aarhus
 Denmark

Fax +45-8949-2090
 E-mail: niels.mygind@dadlnet.dk

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October 9 - 12 2002

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Further Information Administration, The Institute of Laryngology & Otology
 330/332 Gray's Inn Road, London WC1X 8EE
 Tel.: + 44-20-7915 1549/1592
 Fax: + 44-20-7837 9297
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