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## Nontraumatic headache in the Emergency Department: a survey in the province of Trieste

Published online: 20 July 2005

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**Abstract** The objective was to study the demographics, diagnostic procedures and therapies employed in order to provide guidelines to Emergency Department (ED) physicians. A six-month retrospective analysis of the records of all patients presenting with nontraumatic headache (NTH) to the EDs of the province of Trieste was performed. Of 38,238 patients screened, 300 (0.8%) presented with NTH and 49.7% were referred to specialists. Patients were classified as having secondary headache (41.3%), primary headache (24.3%) and headache with no obvious source (NOS) (34.4%). One hundred and seventy patients were treated with mono- or polytherapy. Of 50 patients with migraine, 36 were treated with NSAIDs and 4

with triptans. 68.4% of patients were referred to a general practitioner and 31.6% were admitted. The frequency of NTH was lower than in other studies. NOS headache was frequent. Only 10% of migraineurs received triptans. Diagnostic and therapeutic guidelines for ED physicians are needed.

**Key words** Nontraumatic headache • Emergency Department • Treatment

### Introduction

Nontraumatic headache (NTH) is a common complaint and one of the most frequent presenting symptoms to the Emergency Department (ED). It accounts for 1.2%–4.5% of all visits and 10%–21% of all neurological consulting visits to the ED [1–5]. Furthermore, it is one of the main reasons for the request of an urgent neurological visit to establish a correct aetiological diagnosis of headache. High

frequency in the general population and vagueness of the symptoms make headache a very worrying symptom with a need to exclude a situation of immediate danger. At the same time, this must not lead to an indiscriminate use of diagnostic investigations, such as computerised tomography, which, even though not invasive, represents a biological and economic burden for the whole population. Epidemiological studies on headache presenting to EDs allow us to know how frequently we will come across and what are the risk factors for types of secondary headaches

for which thorough investigation and adequate treatment are mandatory; to screen the various forms of primary headaches and tailor therapeutic strategies; to know the efficacy of medical services in terms of admission to and discharge from hospital, follow-up, and assessment of individual and social costs.

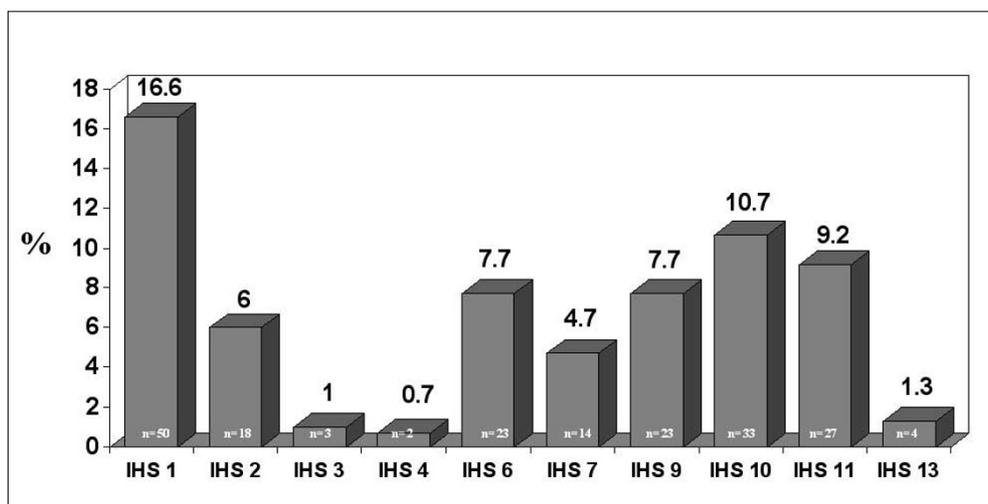
The purpose of this study was to study the demographics, clinical characteristics, diagnostic procedures and therapies employed in patients presenting to the ED with a chief complaint of headache in order to provide diagnostic and therapeutic guidelines to ED physicians and improve the cost-to-benefit management of such patients.

## Methods

A retrospective analysis of the records of all patients presenting in a six-month period (01.01.2004–30.06.2004) with NTH to the two EDs of the University Hospital of the province of Trieste was performed. The average annual ED number of visits is around 78,000. The study researchers selected from the ED records patients of both sexes over age 18 with a diagnosis of primary headache, secondary headache and headache of no obvious source (NOS), according to the International Classification of Headache Disorders 2nd edition [6], whenever the presence of adequate information in the patient's record made it possible. Both EDs had homogeneous recording systems, therefore the selection of cases was done by electronic or manual means. For each patient demographic and clinical information, diagnostic tests and consulting visits ordered, therapies administered, time spent in ED, disposition and diagnosis at discharge were obtained. The data were processed and analysed using the Statistical Package for the Social Sciences (SPSS 11.0).

## Results

Of 38,238 patients screened, 300 (0.8%) presented with NTH. Sixty-one percent were women and 39% men with a mean age of 45 (SD=19) years. Twenty-two patients had multiple admissions to the ED. One hundred and forty-nine patients (49.7%) were referred to various specialists: in particular, 93 patients (31.1%) to the neurologist, 28 patients (9.3%) to other specialists and 28 (9.3%) to both the neurologist and other specialists. Neurological visits accounted for 81.2% of these specialist consultations and represented 12.7% of all neurological consulting visits to the ED in the same period. Twenty-one percent of patients underwent a CT of the skull. Seventy-three patients (24.3%) were classified as having primary headache, 124 (41.3%) secondary headache and 103 (34.4%) NOS headache. Figure 1 shows the frequency of the various forms of headache divided by the main chapters of IHS Classification, migraine being the most common headache (16.7%). Of the 103 patients with NOS headache, 41 (39.8%) received a specialist visit; among these, 36 (87.8%) were neurological visits. One hundred and seventy patients (56.6%) were treated with mono- or polytherapy (56.7% with NSAIDs, 13.4% with benzodiazepines, 10.7% with antiemetics, 6.2% with antihypertensives, 1.5% with triptans and 11.5% with other drugs). Of 50 patients with migraine, 40 received pharmacologic treatment, 90% with NSAIDs and 10% with triptans. The mean time spent in ED was 225 (SD=285) min, without differences between primary, secondary and NOS headaches. Taking into account the patients with migraine who have been treated, a significant difference in the length of stay in the ED between patients to whom triptans were administered (112 min, SD=25) and patients treated with



**Fig. 1** Frequency of the various forms of nontraumatic headache presenting to the Emergency Departments of the University Hospital of the province of Trieste divided by main chapters of the International Headache Society Classification (2004)

NSAIDs (265 min, SD=282,  $p=0.02$ ) was found. 68.4% of patients were referred to a general practitioner, 4.4% were admitted to the Department of Neurology, 3% to the Department of Neurosurgery, 2% to the Infective Disease Ward and 22.3% to the General Medicine Ward.

## Conclusions

The frequency of patients with a complaint of headache presenting to the ED was 0.8% of all the attendances at the ED over the 6 months of observation. The frequency of headache was slightly lower than that reported in other similar studies performed in the ED setting. The number of neurological consulting visits requested by the ED physicians was high (40.3% of all patients). Other studies report frequencies from 10% to 21% [5, 7, 8].

The diagnosis of NOS headache was common despite the high frequency of specialist visits performed. High frequencies, up to 59%, have been reported also in other studies [9, 10]. This may be the consequence of the methodological approach, which was retrospective, and the lack of a sufficiently detailed medical history in the patient records analysed. Concomitant headaches have not been recorded. The possibility that the ED doctors tend to record only one type of headache, ignoring forms of headache not observed presently, has already been reported [11]. Only 10% of migraineurs received triptans, despite the recommendation of the Italian Society for the Study of Headache Guidelines to use triptans as first-line drugs for moderate and severe migraine attacks [12]. The findings of this retrospective study induced us to outline some recommendations to the ED physicians in order to improve diagnostic specificity and therapeutic interventions.

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