

INCIDENCE AND HOSPITALIZATION RATE OF SYNCOPE IN A NON-EMERGENCY HOSPITAL

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ABSTRACT

Syncope is a frequent medical condition presented to Emergency Rooms and an important source for hospitalization. Little is known in our country about characteristics of patients with syncope presented as an emergency or not. Our aim is to evaluate epidemiologic features of all patients considered to have syncope and assessed in ambulatory or in-hospital setting in a teaching non-emergency hospital. We included 164 patients with diagnosis of syncope evaluated in neurology or cardiology departments over a one year period. We found that these patients represent 1.1% of total patients admitted in both departments, 62.2% being hospitalized, mostly in neurology department. The patients considered for in-hospital assessment were older and with more comorbidities than those evaluated in ambulatory setting. The most frequent cause of syncope was reflex and we found a significantly high incidence of diagnosis of unexplained syncope. We concluded that syncope represents a major symptom for clinicians and often the cause remains hidden because of heterogenous approach to these patients. This emphasize the multidisciplinary aspect of patients with syncope and the necessity of implementation of standardized pathways for their evaluation.

Key words: syncope, incidence, hospitalization, cause

INTRODUCTION

Syncope, defined as a sudden transient loss of consciousness of short duration with inability to maintain postural tonus and followed by spontaneous complete recovery (1), represents a common medical problem. Its incidence varies between 1 and 3% of total presentations in the emergency departments and nearly half of patients are hospitalized (2-6). The burden of syncope is demonstrated to have a serious economic impact in USA as well as in Europe, the overall costs driven primarily from admissions (7-12). Little is known about epidemiology of syncope in general population and its management in Romania in the settings of emergency or nonemergency health facilities. Our objective was to evaluate the incidence and rate of hospitalization of syncope over a period of a year in a teaching non-emergency hospital.

METHODS

We prospectively evaluated all consecutive patients referred to cardiology or neurology departments in which the diagnosis of syncope was considered, from January 1st to December 31th 2008. We included all patients admitted with the diagnosis of syncope or evaluated ambulatory for syncope. The patients with transient loss of consciousness and a presumptive diagnosis of non-syncopal causes were excluded. There was no intervention in the decision of hospitalization or the pathway of evaluation decided by the current physicians. The final diagnosis was considered and this was assessed by an independent multidisciplinary team with experience in management of syncope, formed by a cardiologist, a neurologist and an internal medicine specialist. We collected data regarding demographics, comorbidities, history of syncopal episodes and

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presence of prodromal symptoms. For statistical assessment we used D'Agostino-Pearson test for evaluation of normality of distribution. The results were expressed as median and 25th and 75th percentile in case of age and means in case of number of syncopes. We utilized Mann-Whitney test for comparison of means of number of episodes and Wilcoxon test for comparison of medians in case of age. The categorical variables were expressed as percents and for comparison we performed chi-square test or Fisher's exact test as appropriate. The data processing and statistical analysis were performed using Microsoft Excel v.2010 for Windows (Microsoft, Redmond, Washington, USA), NCSS v.9 (NCSS, LLC. Kaysville, Utah, USA) and Medcalc v.12.7 (MedCalc Software, Ostend, Belgium).

RESULTS

A total of 164 patients were evaluated for syncope in neurology and cardiology departments and those hospitalized correspond to a 1.1% of total of patients evaluated in both departments during 2008. 72 patients (43.9%) were evaluated in cardiology department and 92 (56.1%) in neurology department. Of total 102 patients (62.2%) were hospitalized and 62 (37.8%) were evaluated in ambulatory setting. The data regarding demographics, comorbidities, previous history of syncope and presence of prodrome for entire population included and in hospitalized and ambulatory subgroups of patients is presented in Table 1. The patients considered for hospitalization were older and with history of comorbidities, especially hypertension and heart failure.

The rate of hospitalization was significant higher for patients presented to neurology department in comparison with cardiology department (82,6% vs. 36,1%, $p < 0,0001$); in the latter the most of patients were evaluated ambulatory (see Figure 1).

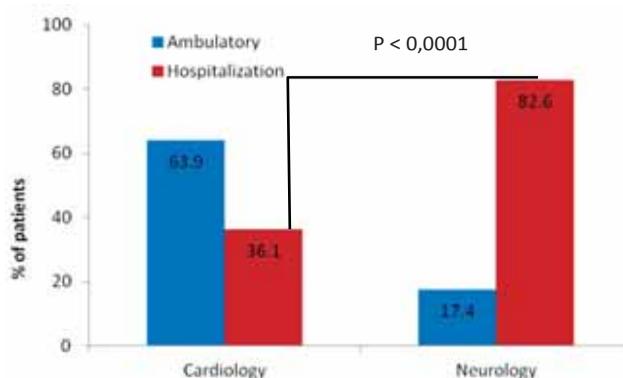


FIGURE 1. Setting of evaluation of patients presented to cardiology and neurology departments.

The final diagnosis of type of syncope (see Figure 2) was reflex in 73 patients, cardiac in 6 patients, hypotension in 7 patients and unknown in 57 patients. 4 patients had at least two causes for syncope and 15 had another substrate such as cerebrovascular event or psychiatric disorder. After reviewing the medical data 11 patients were considered to have reflex syncope and 3 patients had cardiac cause which reduced the number of unknown syncope to 44.

Reflex syncope was diagnosed in more than half of cases of patients under 50 years and especially under 40 years. Conversely, syncope of cardiac origin was diagnosed in one case of subgroup of 50-59 years and in 8 cases in population over 60 years. The diagnosis of syncope of multiple causes was

TABLE 1. Demographics, comorbidities and history of syncope.

Variable	Global n = 164	Ambulatory (n = 62)	Hospitalization (n = 102)	P-value (ambulatory vs. hospitalization)
Age in years, median (1 st , 3 rd percentile)	51 (31;67)	40 (31;54)	58 (31;73)	0.006
Sex				
Females, %	54,3	51.6	55.9	NS
Males, %	45.7	48.4	44.1	NS
Urban residency, n (%)	142 (87.1)	57 (92)	85 (83.3)	NS
Number of episodes, mean	2.3±2.17	2.8±2.8	1.9±1.6	0.009
Presence of prodrome, n (%)	122 (74.4)	51 (82.3)	71 (69.6)	NS
All comorbidities, n (%)	59 (36)	10 (16.1)	49 (48)	<0.0001
Specific comorbidities				
Hypertension, n (%)	39 (23.8)	7 (11.3)	32 (31.4)	0.004
Diabetes, n (%)	11 (6.7)	4 (6.4)	7 (6.8)	NS
Coronary heart disease, n (%)	17 (10,4)	4 (6.5)	13 (12.7)	NS
Heart failure, n (%)	8 (4.9)	0	8 (7.8)	0.025
Arrhythmias, n (%)	11 (6,7)	0	11 (10.8)	0.0076
Cerebrovascular history, n (%)	8 (4.9)	1 (1.6)	7 (6.9)	NS

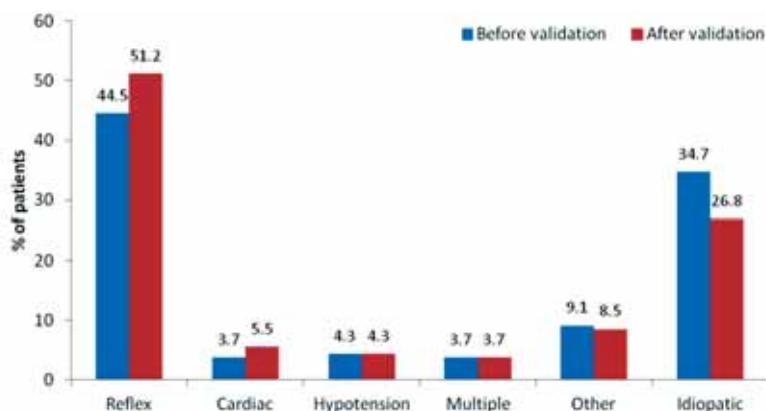


FIGURE 2. Causes of syncope before and after validation of diagnosis

considered only in the subgroup of patients over 70 years. The distribution of subtypes of syncope and their contribution in age subgroups is illustrated in Figure 3.

Reflex syncope was significantly more prevalent in women (60.7% vs. 39.3% in males, $p=0.008$), in rest were not found significant differences between sex categories (see Figure 4).

The Figure 5 reveals the causes of syncope considered in patients evaluated ambulatory in comparison with hospitalized ones. In case of patients evaluated ambulatory the most frequent diagnosis was reflex syncope (80.6%), but the cardiac syncope or syncope of multiple causes were diagnosed only in hospitalized patients.

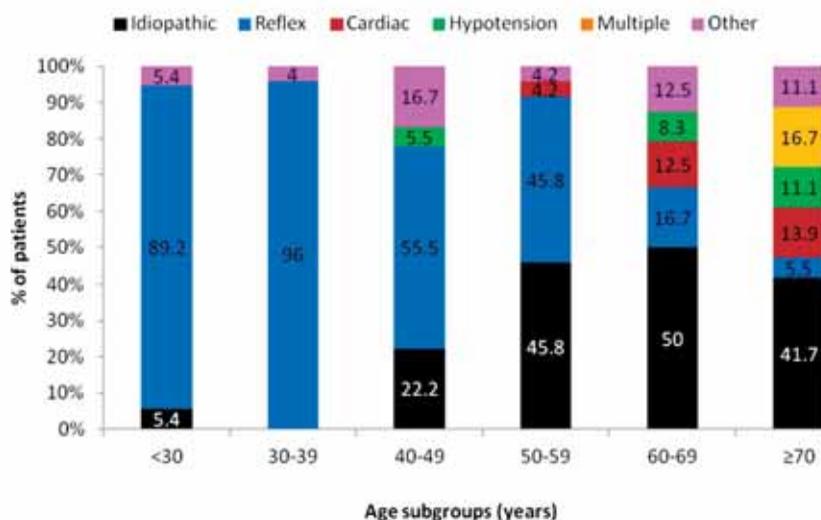


FIGURE 3. Types of syncope in relation with age subgroups

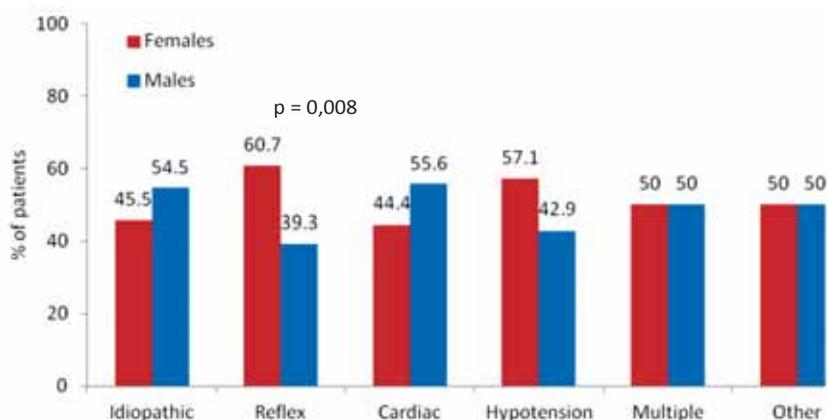


FIGURE 4. Causes of syncope in relation to sex category

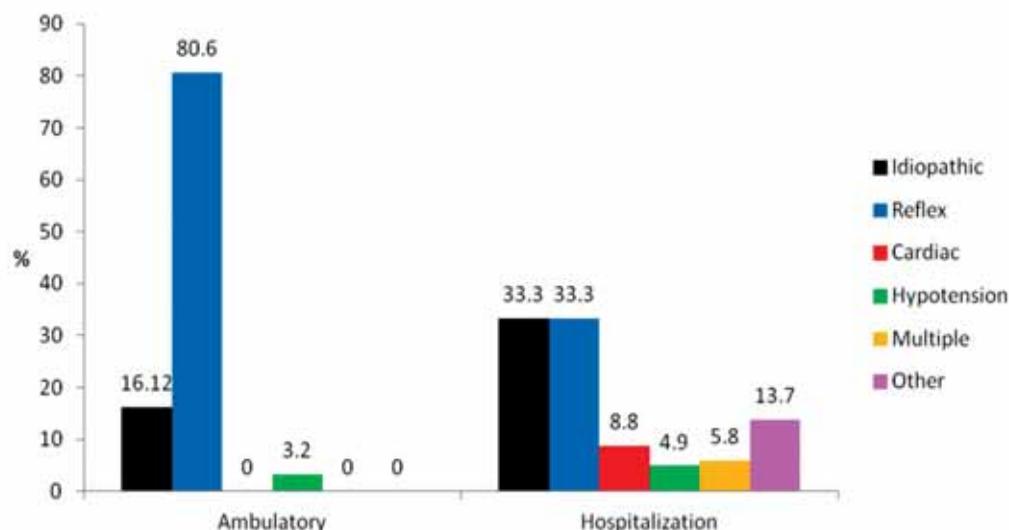


FIGURE 5. Causes of syncope diagnosed in ambulatory settings vs. hospitalization

DISCUSSIONS

To our knowledge this is the first study which tried to describe the characteristics and management of a non-selected population with the diagnosis of syncope over a period of a year in our country. We found that syncope contributes to 1.8% of total of admissions for evaluation, either ambulatory or in-hospital. More than 60% were hospitalized. These numbers are in agreement with previous reports. In the Framingham Study there was an incidence of 3% (13) and other studies revealed the fact that syncope contributes to 1% of emergency departments and urgent referrals, ~40% of these patients being hospitalized (1,6,7). As expected, the patients hospitalized were older and have higher incidence of comorbidities, especially uncontrolled hypertension and history of heart failure. Wagner & al (14) found as well that advanced age and history of cardiovascular comorbidities are independent predictors for hospitalization. Also Blanc & al (3) remarked that patients hospitalized are older than those discharged. In contrast, in a more recent report (15) there were no significant differences between hospitalized and discharged patients from emergency room in terms of age or cardiac comorbidities. Regarding the causes of syncope, consistent with previous assessments, the most frequent cause was reflex especially in younger patients and in females. However, in our study the syncope of unknown cause remains at a high rate, even among those hospitalized. Soteriades & al found an incidence of almost 40% of unexplained syncope (16) in Framingham cohort and Brignole & al reported a

range between 0 and 61% among hospitals in Italia for the same diagnosis, but newer evaluations especially after implementation of syncope units revealed a incidence lower as 18% (17). To explain the high incidence of unexplained syncope and trying to corroborate this with the lower number of cardiac syncope (in comparison with other publications (3,14,16,18) we consider several factors: lesser availability of some specific tests (like implantable loop recorder), inappropriate use of some tests like carotid massage or orthostatic stress, lack of multidisciplinary approach and of a standardized pathway of investigations in patients with syncope. Another peculiar feature revealed in our study is represented by the high number of cases evaluated primarily in the neurology department and the high rate of hospitalization in comparison with other departments. The latter could be explained by the local less well-established protocol of ambulatory assessment and availability of some investigations used for diagnosis of syncope. But the initial presentation and evaluation of a syncope in neurology is conflicting with other reports in which patients were hospitalized or assessed in internal medicine or cardiology departments (3,18). Also, in the case of evaluation in a syncope unit most patients in which hospitalization was considered necessary were directed to cardiology unit and only one to neurology (17). These two findings contributes to the image of a heterogeneous and non-standardized approach to the patient with syncope and strengthen the necessity of a protocol of evaluation in agreement with latest European Society of Cardiology guidelines.

Our study has some limitations. First, some patients were diagnosed with syncope at presentation and were not included because either were referred to other hospital, discharged before collecting data or not presented for evaluation as recommended. Also, data comes from a single center which is not an emergency hospital according to our healthcare system policy. Despite our demographics seems to be similar to other reports in many aspects differences could appear in case of an emergency facility with higher number of presentations. Third, the study is partly retrospective as the validation of diagnosis was made post-hoc on basis of existing data.

CONCLUSIONS

Syncope remains a significant medical problem for clinicians and is associated with a high rate of hospitalization. Reflex syncope is the most common cause but the incidence of syncope of unknown cause is high. A multidisciplinary approach and implementation of protocols in evaluation represent a necessity in these patients.

Disclosure: none to declare.

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