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Current ED syncope management in Italian hospitals and prospects for optimization: a national survey

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Abstract

To investigate current ED management of patients with syncope in Italy and opportunities for optimization, we carried out a questionnaire survey involving 102 directors of ED facilities in our country, of any complexity level, with 55.9% located in the North, 97% equipped with an ED Observation Unit (EDOU), and 21.8% with an outpatient Syncope Unit (SU). 43.6% of EDs management is not standardized. Clinical judgment and monitoring are the main factors leading management while old age and neuropsychic comorbidities the most hindering it. More than one third of ED facilities treats fewer than half of patients in EDOU. Most of respondents (73.7%) reported an admission rate within 20%, primarily in cardiology, in the case of an established or suspected cardiac etiology of syncope.

In most centers, the referral to the general practitioner is the priority path at discharge from ED. Nearly 50% of participants rated syncope management in their own center as sub-optimal. To optimize it, 98% of them believe that is appropriate to implement a standardized approach, with and a large majority focusing on increasing diagnostic yield and safety; other priorities include application of guidelines, implementation of care pathways, enhancement of the role of EDOU, and direct path to the SU. This study highlights that the management of syncope patients in our country requires a further improvement, especially through standardization of pathways and adoption of innovative organizational solutions. Admissions appear to be lower than reported in the literature but this finding must be confirmed by a multicentric study based on direct collection of data.

Keywords Syncope · Emergency Department · Management optimization

Introduction

Syncope is a rather frequent condition, responsible for 1–1.5% of Emergency Department (ED) visits [1]. Even if the development of clinical guidelines (GL) has improved the ED management of syncope [2], hospitalization rate is still very high (up to 50%), especially compared with the incidence of short-term adverse events, which is globally 11%, but decreases to less than 4% when events already diagnosed in ED are excluded [1], and it means that only a small minority of patients will benefit from admission. Moreover, it should be considered that such a management involves high costs (mostly due to hospitalization per se) and does not guarantee at all a high diagnostic yield, as up to 40% of patients will be discharged without an etiological diagnosis [3].

Faced with these critical issues, European Society of Cardiology guidelines (ESC GL) [4] focus on the ED syncope management, to reduce inappropriate tests and hospitalizations, while maintaining patient safety, and to do so they pay great attention to pathways and organizational issues, such as management in ED Observation Unit (EDOU) and fast-track to outpatient Syncope Unit (SU) [1]; even if so far few studies have approached this topic, a strategy based on EDOU management of patients with syncope seems optimal, able

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to ensure a limited ED length of stay (LOS), high diagnostic yield, lower hospitalization rate, and low rate of adverse event [5].

Noteworthy, this approach centered on streamlining ED paths appears consistent with Institutions' plans to address the main issues affecting EDs in our country, such as crowding, delays, costs, and clinical risk [6, 7].

Aim

To improve the ED management of patients with syncope, first of all there is the need to know the current performance of ED facilities, with regard to structural and organizational aspects, as well as the paths used; unfortunately, to the best of the authors' knowledge, no studies have addressed this issue. Therefore, aims of this study were to investigate the current ED management of patients with syncope in Italian hospitals and to assess opportunities for optimization.

Methods

Study design and setting

This study, endorsed by the Gruppo Italiano Multidisciplinare per lo Studio della Sincope (GIMSI) and the Academy of Emergency Medicine and Care (AcEMC), was based on a survey, in the form of a questionnaire sent to the directors of ED facilities operating in our country.

The head office of the study was the SU of Academic Hospital of Parma, part of the ED.

Study period

This study took a total period of 7 months, starting from November 2022: 3 months for the preparation of the questionnaire and the collection of the e-mail addresses of the directors of ED facilities operating in our country, 4 months for sending to the centers the invitation to participate and for collecting and processing the answers.

Study phases

To involve as many EDs as possible across Italy, we looked up the e-mail addresses of directors of the all facilities present in our country (610, excluding those with a pediatric emergency room only, according to the latest Ministry of Health update, available at: https://www.salute.gov.it/portale/documentazione/p6_2_8_1_1.jsp?lingua=italiano&id=17), successfully collecting contact information of 235 among these (38.5% of total), of any complexity level, including Basic Emergency Room (ER), first- and second-level Emergency and Admission Departments (DEA), of which 116 located in the north, 57 in the center, and 62 in the south and on the islands of our country (p value: <0.001).

Then we prepared a questionnaire containing 19 multiple-choice and ranking questions, on the following items (see Table 1): (i) information about ED facilities (complexity level, geographical area, availability of an EDOU and of an outpatient SU); (ii) current management of patients with syncope (standardized approach or usual care; factors affecting management; role of ED triage, EDOU and admission; path at ED discharge; overall rating on syncope management); (iii) optimization of management (priorities and tool to be used).

An electronic form of this questionnaire was then created and posted to the Google drive (Google forms) and a link distributed by e-mail, together with an explanatory cover letter with the purposes of the study; during the study period, we sent the invitation to participate in the survey four times, at regular intervals, then closed the data collection and processed the responses received.

Statistics

We analyzed and presented results of the survey with descriptive statistics, using the Chi-square test for categorical variables to assess the significance of differences between answers to multiple-choice and ranking questions (as regard the latter, the difference within each option was reported as "internal" difference in the Results).

Ethics and regulatory aspects

The study was conducted in accordance with the Helsinki Declaration and under the terms of the relevant local legislation; since it was based on an anonymous survey conducted among health professionals, without any involvement of sensitive data, we notified the local Ethics Committee of its conduct, without the need for an ordinary authorisation process or an informed consent from the participants.

Results and discussion

Information about ED facilities

Table 2 shows results of the study; Supplemental Fig. 1 provides a graphical representation of the same data.

Within the end of data collection, 102 ED directors took part in the survey, equal to 43.4% of the total number of recipients to the survey, from 30 basic ER (29.4%), 44 first-level DEA (43.1%), and 28 second-level DEA (27.5%); these facilities collectively represent almost a fifth (16.7%) of those present in our country, 11.5% of the hospitals with ER, 17.9% of the first-level DEA,

Table 1 Questionnaire

Characteristics of ED facilities involved
1. Type of ED facility
- Emergency room ☐
- 1st level DEA ☐
- 2nd level DEA ☐
2. Geographical area
- North ☐
- Centre ☐
- South and Islands ☐
3. ED Observation Unit
- Available ☐
- Not available ☐
4. Outpatient Syncope Unit
- Available ☐
- Not available ☐
ED syncope management
5. Current syncope approach
- Standardized, through care-pathways ☐
- Standardized, through other tools ☐
- Usual care ☐
6. Triage use of specific scale for syncopal patients
- yes ☐
- no ☐
7. Main factors affecting syncope management (*rank your preferences # 1 to 6)*
- clinical judgment ☐
- ECG and vital parameters monitoring ☐
- laboratory examinations ☐
- clinical decision rules ☐
- instrumental exams ☐
- consultations ☐

and 28.4% of the second-level DEA. More than half of the centers involved are located in the north (57, equal to 55.9%) while the least represented area is south and islands (19, equal to 18.6%). Almost all of the structures are equipped with an EDOU (97%), while one-fifth of total is located in hospitals equipped with an outpatient SU (22, equal to 21.8%).

Therefore, in this survey, we observed a very good participation rate, near to half of ED directors invited, with the coverage of a satisfactory number of EDs, on the total ED

Table 1 (continued)

8. Main factors hindering syncope management (*rank your preferences # 1 to 5)*
- Advanced age and neuropsychic comorbidities ☐
- Lack of gold standard diagnostic test ☐
- ED context-related factors (crowding, etc.) ☐
- Absence of witnessess ☐
- Defensive medical behaviour ☐
9. Rate of patients not directly discharged from ED managed in EDOU
- Over 80% ☐
- 50-80% ☐
- < 50% ☐
- I don't know ☐
10. Hospitalization rate
- < 20 % ☐
- 20-50% ☐
- > 50 % ☐
- I don't know ☐
11. Main wards of admission (*rank your preferences # 1 to 4)*
- Cardiology ☐
- Internal medicine / Geriatry ☐
- Emergency medicine ward ☐
- Neurology ☐
12. Main reasons for hospitalization (*rank your preferences # 1 to 5)*
- Cardiac syncope (diagnosed or suspected) ☐
- Acute diseases underlying syncope (diagnosed or suspected) ☐
- Injuries ☐
- Comorbidities ☐
- Lack of etiological diagnosis ☐
13. Path at ED discharge (*rank your preferences # 1 to 3)*
- Referral to the general practionaire ☐
- Fast track to outpatient specialist clinics ☐
- Fast track to outpatient syncope unit ☐
14. Overall judgmnent on syncope management
- Optimal ☐
- Good ☐
- Decent ☐
- Unsatisfactory ☐

Table 1 (continued)

Optimisation of ED syncope-management	
15. Implementing a standardized approach	☐
- Recommended	☐
- Not indicated	☐
- Appropriate but difficult for structural /organisational reasons	☐
- Appropriate but difficult for other reasons	☐
16. Priorities (*rank your preferences # 1 to 3)*	
- Increasing diagnostic yield	☐
- Increasing safety	☐
- Reducing costs	☐
17. Tools to optimize syncope management (*rank your preferences # 1 to 4)*	
- Widespread GL diffusion and application	☐
- Care pathways and organisational issues	☐
- Use of clinical decision rules	☐
- Valorize role of ED triage	☐
18. Tools to optimize the role of EDOU (*rank your preferences # 1 to 3)*	
- Creating in a subunit dedicated to patients with syncope	☐
- Increasing rate of patients managed in EDOU ≥ 80%	☐
- Setting an EDOU or optimizing his instrumental dotation	☐
19. Fast-track to be implemented (*rank your preferences # 1 to 4)*	
- Syncope Unit	☐
- Cardiology outpatient clinic	☐
- Geriatric outpatient clinic	☐
- Neurological outpatient clinic	☐

facilities present in our country (almost one-fifth); no previous published study is available with such a large sample of Italian ED facilities involved.

Even so, we recognize that the composition of our sample is quite unbalanced, as it is characterized by a high proportion of II level DEA, a non-homogeneous geographical distribution and a rate of facilities equipped with EDOU and Syncope Unit higher than the national figure; this means that results could be affected by a selection bias of II level.

Current management of patients with syncope

Tables 3 and 4 show results of the study (respectively resulting from multiple-choice and ranking questions); Supplemental Figs. 2 and 3 provide a graphical representation of the same data.

In just over half of the centers, the management of patients with syncope is standardized, based on care pathways (31.7% of centers) or other tool (internal dissemination of GL, audits, dedicated software, in 24.8% of centers), while in the remaining (43.6%), patients are managed with "usual care", arbitrarily, based on the judgment of the individual emergency physician (EP).

Despite the selection bias mentioned above, in little more than half of the centers, management of patients with syncope is standardized, while in the others, causal care still prevails, based on the clinical judgment of the individual EP. This suggests that substantial proportion of Italian EDs tend not to follow GL recommendations.

In most ED facilities, triage operators do not use specific assessment scales to stratify risk in patients with syncope (80%); based on this finding, authors think that the role of

Table 2 Characteristics of ED facilities involved

Item	n	%	p
Type of ED facility	102		
Emergency room	30	29.4	> .05
First-level DEA	44	43.1	
Second-level DEA	28	27.5	
Geographical area	101		
North	57	55.9	< .0001
Center	26	25.5	
South and islands	19	18.6	
ED Observation Unit	100		
Available	97	97	< .0001
Not available	3	3	
Outpatient Syncope Unit	101		
Available	22	21.8	< .0001
Not available	79	78.2	

DEA Emergency and Admission Department

Table 3 Current ED syncope management: multiple-choice questions

Item	N	%	p
Current syncope approach	101		
Standardized, through care pathways	32	31.7	> .05
Standardized, through other tools	25	24.8	
Usual care	44	43.6	
Triage use of specific scale for syncopal patients	100		
Yes	20	20	< .0001
No	80	80	
Rate of patients not directly discharged from ED managed in EDOU	97		
Over 80%	16	16.5	< .0001
50–80%	37	38.1	
< 50%	38	39.2	
I do not know	3	3.1	
Hospitalization rate	99		
< 20%	73	73.7	< .0001
20–50%	19	19.2	
> 50%	4	4	
I do not know	3	3	
Overall judgment on syncope management	99		
Optimal	1	1	< .0001
Good	50	50.5	
Decent	31	31.3	
Unsatisfactory	17	17.2	

EDOU Emergency Department Observation Unit

triage could be greatly enhanced in the management of syncopal patients, with positive effects on ED paths.

With regard to factors influencing patient management, clinical judgment and monitoring (ECG and vital signs) are those that received the greatest number of preferences as first choice (respectively, 44 equal to 32.6% of total and 34 equal to 25.2%, both with a highly significant internal difference); a much smaller number of participants gave high priority to laboratory tests and, even fewer, to the other options proposed (less than 10% of first-choice preferences). These results confirm that emergency physicians (EPs) often rely more on their own clinical judgment rather than evidence-based guidelines [8] and demonstrate that, as recommended by ESC GL [4], ECG monitoring is of essential importance to identify syncopal patients with high risk features (suggesting a cardiac syncope) who should not be discharged from the ED.

The low number of first-choice preferences attributed to clinical decision rules is consistent with available literature evidences: these prediction scores have not shown better accuracy in predicting short-term serious outcomes after syncope when compared with clinical judgment alone [4].

Among factors hindering patient management, advanced age, together with associated typical neuropsychic comorbidities, was the one that received the greatest number of preferences as first choice (40, equal to 37.4% of total, with a highly significant internal difference); the lack of a gold diagnostic standard and other ED context-related factors are next, with a clear gap (without a significant internal difference), while only a small minority of participants considered as priority the absence of witnesses as well as the defensive attitude of EPs.

These findings confirm that dealing with syncope in elderly patients can be really difficult due to several reasons such as coexistence of multiple potential causes, difficulty in history taking, amnesia, and frequent overlapping with falls [9, 10]; they also show that, in the challenging diagnosis of syncopal episodes, EPs suffer from typical aspects of the ED context, such as multiple different diagnoses to be considered, without a diagnostic gold standard, shortness of time for clinical evaluation, crowding [11].

With regard to the role of EDOU in the management of patients who are not directly discharged from the ED, most centers manage less than 50% (39.2%) or between 50 and 80% (38.1%) of patients in this setting, while just a small minority (16.5%) dealing more than 80% of patients in EDOU (with a highly significant difference between the options proposed). According to these data, EDOUs result to be an underutilized resource in the management of syncope as in over a third of ED facilities less than half of the patients are managed there.

In this regard, it should, however, be noted that due to the crowding, in our country, EDOUs are sometimes used

Table 4 Current ED syncope management: ranking questions

Item	Total responses	First choice[a]	Mode[b]	p
Main factors affecting syncope management				
Clinical judgment	95	44 (32.6)	1° (44)	< .0001
ECG and vital parameters monitoring	101	34 (25.2)	1° (34)	< .0001
Laboratory examinations	98	19 (14.1)	2° (22)	> .05
Clinical decision rules	90	13 (9.6)	6° (28)	< .05
Instrumental exams	101	13 (9.6)	4° (24)	> .05
Consultations	98	12 (8.9)	6° (23)	> .05
Main factors hindering syncope management				
Advanced age and neuropsychic comorbidities	100	40 (37.4)	1° (40)	< .0001
Lack of gold standard diagnostic test	97	23 (21.5)	4° (26)	> .05
ED context-related factors (crowding, etc.)	98	21 (19.6)	3° (24)	> .05
Absence of witnesses	95	14 (13.1)	2° (26)	> .05
Defensive medical behavior	92	9 (8.4)	6° (25)	< .05
Main wards of admission				
Cardiology	88	40 (32.2)	1° (40)	< .0001
Internal medicine / geriatric	99	34 (27.4)	1° (34)	< .05
Emergency medicine ward	69	31 (25)	1° (31)	< .05
Neurology	79	19 (15.3)	4° (29)	< .05
Main reasons for hospitalization				
Cardiac syncope (diagnosed or suspected)	97	47 (51.6)	1° (47)	< .0001
Acute diseases underlying syncope (diagnosed or suspected)	91	13 (14.3)	2° (31)	< .05
Injuries	87	11 (12.1)	3° (27)	< .05
Comorbidities	92	11(12.1)	4° (30)	< .05
Lack of etiological diagnosis	92	9 (9.9)	5° (26)	< .05
Path at ED discharge				
Referral to the general practitioner	98	54 (52.9)	1° (54)	< .0001
Fast-track to outpatient specialist clinics	93	24 (23.5)	2° (53)	< .0001
Fast-track to outpatient Syncope Unit	69	24 (23.5)	3° (38)	< .0001

[a]Results are given as absolute number and, in brackets, as a percentage on the total number of first-choice preferences assigned to all proposed options

[b]The priority level with the highest number of preferences, indicated in brackets

inappropriately, with a high percentage of patients waiting for a hospital bed (up to 30%) and a length of stay exceeding the ministerial recommendations [12].

As concerns hospitalization, most of the survey participants (73.7%) reported an admission rate within 20% of the total patients while in a much smaller number of centers (19.2%), between 20 and 50% of total cases are usually hospitalized; only four ED directors (4% of total) reported an admission rate > 50% of patients (with a highly significant difference between the options proposed). Although potentially influenced by the selection bias mentioned above, these data show a low hospitalization rate in most of the ED facilities involved, lower than the latest data available in the literature, in line with the objectives set by ESC GL [4].

In case of admission, cardiology was the hospital ward that received the highest number of first-choice preferences (40, equal to 32.2% of total, with a highly significant internal difference), followed by internal medicine/geriatric (34, equal to 27.4% of total) and emergency medicine ward (31, i.e., 25%); only a small minority of participates gave a first-choice preference to neurology.

With regard to the causes of admission, the presence of a cardiac cause of syncope, established or even suspected, is the factor that has most often been identified as priority (47 first-choice preferences, equal to 51.6% of total, with a highly significant internal difference), followed with a clear detachment by the others options proposed, the presence of acute diseases underlying syncope (13 first-choice preferences, equal to 14.3% of total), injuries or comorbidities (both 11 first-choice preferences, equal to 12.1% of total) and the lack of an etiological diagnosis (9 first-choice preferences, equal to 9.9% of total).

Taken together, these findings also seem to indicate a good performance of Italian ED, as hospitalization is mainly

limited to patients with high risk features, suggestive of cardiac syncope.

The good level of first-choice preference obtained by the departments of internal medicine and geriatrics appears justified by the high prevalence of acute conditions underlying syncope, even if not severe (up to 27%) [13], as well as by the substantial proportion of patients with advanced age and comorbidities, factors which can complicate the approach, as indicated above, and hamper a direct discharge from ED. Results about the emergency medicine ward, characterized by a rather high level of first-choice preferences as first choice but an overall low number of opinions expressed is somewhat perplexing, as it is probably affected by the presence of organizational differences between the various centers.

As for the path at the ED discharge, the referral to the general practitioner is the option that received the highest number of first-choice preference (n. 54, equal to 52.9% of the total, with a highly significant internal difference) while fast-track to outpatients SU or other specialist clinics was considered the priority option in fewer cases (24, equal to 23.5% of the total, with a highly significant internal difference). So, the referral to the general practitioner is the option that has most frequently been identified as first choice, in agreement with recommendations of ESCG GL for patients without high risk features, which constitute the majority of cases. The remaining first-choice preferences are equally divided between SU and other outpatient specialist clinics, probably due to organizational differences between the various centers involved.

To complete this part of the survey, ED directors were asked to give an overall assessment on syncope management in their own center: a little more than half of them (50, equal to 50.5% of the total) considered it to be of good quality while a smaller number of participants considered it to be of decent quality (31, equal to 31.3% of the total) or unsatisfactory (17, equal to 17.2% of the total); only one participant in the survey judged it to be optimal (with a highly significant difference between the options proposed). It should be noted that almost half of the respondents (48.5%) think that syncope management in their own center is of sub-optimal quality ("decent" or "unsatisfactory" quality) and this means that ED directors in our country are well aware that it could be greatly improved.

Optimization of ED management of patients with syncope

Table 5 shows results of the study while Supplemental Fig. 4 provides a graphical representation of the same data.

ED directors were first asked whether they considered it appropriate to implement a standardized approach for patients with syncope, as in case of other conditions commonly addressed in ED (e.g., chest pain or major trauma): nearly all participants in the survey (98% of total) responded in the affirmative, although some of them pointed out that such a choice could be hampered by structural or organizational problems (14.9% of total) or other reasons, such as company policy or cultural factors (5.9% of total). Authors believe that this is a critical starting point for optimizing management: the ED approach to patients with syncope should not be left to chance but every effort must be made to standardize EPs behaviors and harmonize them with available scientific evidence, even where (a minority of cases) there may be organizational or other issues to resolve.

Regarding the priorities to focus on, increasing diagnostic yield and safety were the target that received the highest number of first-choice preferences (respectively, 44, equal to 42.7% of the total, and 40, equal to 38.8% to the total, although without a significant internal difference) while reducing cost received much less first-choice preferences and was mostly considered as non-priority (internal difference significant). These data show a divergence between survey participants and ESC GL which instead focuses on reducing inappropriate tests and admissions, that is the optimization of the use of resources. To achieve this result, ESC GL aim to improve the organization and paths, through the establishment of ED Syncope Observational Unit and a further dissemination of outpatient SU but it must be stressed that these facilities ensure an effective and safe management, with a very low rate of indeterminate syncope and adverse events [4, 5]; therefore, their implementation is likely to meet the priorities highlighted by participants in this survey and should be strongly encouraged.

Regarding tools to be used, the dissemination and application of GL received the greatest number of first-choice preferences (53, equal to 46.1%, with a significance internal difference), followed by the implementation of care pathways and innovative organizational solutions (29, equal to 25.2%, but without a significant internal difference), while other options were less frequently considered priority.

In line with the previous points, participants in the survey believe that to optimize the management of patients with syncope, it is necessary to act both on the cultural and organizational level, educating all EPs through active dissemination of guidelines and improving the paths and facilities available.

Concerning the optimization of the role of EDOU, the establishment within these areas of subunits specifically dedicated to the management of syncopal patients and the increase of rate of patients managed in EDOU more than 80% are the options which received the greatest number of first-choice preferences (respectively, 45 equal to 41.3% of total and 42 equal to 38.5% of total, both with a significance internal difference); only a fifth of participants in the survey considered as priority setting an EDOU or optimizing his

Table 5 Optimization of ED syncope management

Item	Total responses	First choice[a]	Mode[2=b]	p
Implementing a standardized approach	101			
Recommended		78 (77.2)		< .0001
Not indicated		2 (2)		
Appropriate but difficult for structural /organizational reasons		15 (14.9)		
Appropriate but difficult for other reasons		6 (5.9)		
Priorities				
Increasing diagnostic yield	98	44 (42.7)	1° (44)	> .05
Increasing safety	96	40 (38.8)	1° (40)	> .05
Reducing costs	95	19 (18.4)	3° (41)	< .05
Tools to optimize syncope management				
Widespread GL diffusion and application	95	53 (46.1)	1° (53)	< .0001
Care pathways and organizational issues	97	29 (25.2)	1° (29)	> .05
Use of clinical decision rules	97	19 (16.5)	3° (34)	< .05
Valorize role of ED triage	92	14 (12.2)	4° (31)	> .05
Tools to optimize the role of EDOU				
Creating in a subunit dedicated to patients with syncope	93	45 (41.3)	1° (45)	< .05
Increasing rate of patients managed in EDOU ≥ 80%	86	42 (38.5)	1° (42)	< .05
Setting an EDOU or optimizing his instrumental dotation	79	22 (20.2)	3° (29)	> .05
Fast-track to be implemented				
Syncope Unit	91	55 (59.2)	1° (55)	< .0001
Cardiology outpatient clinic	91	19 (18.6)	2° (34)	< .05
Geriatric outpatient clinic	92	18 (17.6)	2° (34)	> .05
Neurological outpatient clinic	82	10 (9.8)	4° (31)	< .05

[a]Results are given as absolute number and, in brackets, as a percentage on the total number of first-choice preferences assigned to all proposed options (for first item, they are given as absolute number and percentage; mode non-applicable)

[b]The priority level with the highest number of preferences, indicated in brackets

instrumental dotation (without a significant internal difference). These findings clearly indicate that the role of EDOUs in the management should be enhanced, dealing in this setting the majority of patients with syncope (i.e., ≥ 80%) and creating dedicated subunits for these patients, in close cooperation with SU (consulting of syncope expert, performing tilt table test during ED stay, fast-track to outpatient SU). However, it is important to note that EDOUs are still missing in a not negligible number of ED facilities (up to 40% of the basic ER and 20% of the DEA) [12] and thus, health administrations should aim to widely spread these facilities, with adequate monitoring and instrumental equipment, throughout the country, into ED of any complexity level, with positive effects on the path of patients with syncope.

With regard to fast-track at ED discharge, the direct path to the SU was the option that received the highest number of first-choice preference (55, equal to 59.2% of total, with a highly significant internal difference), followed with a clear gap by fast-track to other specialist outpatient clinics; among the latter, a direct path to the neurological clinic was mostly considered not a priority (with a significance internal difference). These findings confirm the great interest for SU, as the key organization to optimize management of patients. A direct path to a cardiology clinic may be useful if additional specialist examinations, not possible during the ED stay (for example, electrophysiological study or coronary angiogram), are required, as well as a referral to geriatric clinic in the case of elderly patients, with frailty, multiple comorbidities or pharmacological interfering factors.

Limitations

The main limitation of this study is that the activity of ED facilities has been evaluated by means of a survey sent to the directors and not by direct observation or data collection. In addition, part of the survey participants responded to questions requiring the definition of an order of preferences, in a different way than requested, giving the same level of choice to more than one option; this discrepancy limits the possibility to examine the answers and to compare the options proposed. Finally, we recognize that the aforementioned non-homogeneous geographical distribution of ED facilities involved is influenced by the fact that we obtained more

e-mail addresses of ED directors from the north of Italy, compared to other areas.

Conclusion

Results of this study show that the management of syncope patients in our country requires a further improvement, as it is still not standardized in substantial portion of Italian EDs and nearly half of the survey participants rated it as of a sub-optimal quality. Admissions appear to be lower than reported in the literature but this finding must be confirmed by a multicentric study based on direct collection of data and characterized by a more representative sample of ED facilities, as for complexity level and geographical location. To optimize the ED management of patients with syncope is critical to apply a standardized approach, through an active dissemination and systematic application of GL and a implementation of care pathways, such as the referral to the outpatient SU; in this regard, the survey highlights that EDOU is currently underutilized and its role deserves to be greatly enhanced, in a close connection with SU. Since survey found that advanced age and the associated typical comorbidities are the factors that most hinder patient management, authors believe it is also appropriate to strengthen the role of ED triage, to promptly identify elderly patients with syncope with frailty, as well as the liaison with geriatrics, as a fast-track to acute geriatric units or outpatient clinics.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Human and animal rights statement and Informed consent The study was conducted in accordance with the Helsinki Declaration and under the terms of the relevant local legislation; since it was based on an anonymous survey conducted among health professionals, without any involvement of sensitive data, we notified the local Ethics Committee of its conduct, without the need for an ordinary authorisation process or an informed consent from the participants.

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