

Patients who leave the Emergency Department without being seen. Has COVID-19 affected this phenomenon?

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Abstract. Background and aim of the work: Patients who present to an Emergency Department (ED) and leave without being seen by a physician represent a safety concern because they may become severely ill and experience adverse events as a result of lacking or delayed ED treatment. Prior to the COVID-19 outbreak, the increasing number of patients accessing care through the ED in Italy and throughout the world has had implications for health policies. Methods: A retrospective cohort study that included all ED visits from 1st January 2013 to 31st December 2018 in the Perugia University Hospital has been carried out. Results: During the 5 years investigated 26,344 out of 300,372 (8.77%) patients who attended the ED left the triage area before being seen with an average of 439 patients per month. The same phenomenon has been analysed from February to October 2020. During these 9 months there were a total of 1,824 out of 30,990 (5.88%) patients who left the ED without being seen with an average of 202 per month. The latter value is one third lower than the one related to the period investigated prior to the COVID-19 outbreak. Conclusions: Such investigation could help to differentiate actual essential demand from non-essential demand within the ED, which could inform quality-improvement policies. Several strategies could be implemented to lower the proportion of patients who leave the department without being seen. Reorganising the activities in the ED with different paths should be implemented with the aim of reducing waiting times and in turn patients' satisfaction. (www.actabiomedica.it)

Key words: LWBS(left without being seen); Emergency Department; Covid-19; Waiting time

Introduction

The 2019 coronavirus disease (COVID-19) pandemic has put a strain on health systems through increased care complexity, the need for skilled personnel and increases in patients suspected or known to be infected with severe acute respiratory syndrome-coronavirus 2 (SARS-CoV2) (1). Despite this, in the United States access to the Emergency Department (ED) has decreased by 50% compared to the period before the pandemic (2).

Prior to the COVID-19 outbreak, the increasing number of patients accessing care through the ED in

Italy (3) and throughout the world (4) highlighted the failure of health policies that were supposed to promote the access to primary care services and in turn to reduce the use of ED by patients with low-acuity and non-urgent presentations. Possible causes of the overuse of the ED could be found in the presence of out-of-pocket costs in primary care settings or in the perception of a low quality of the general practitioner (GP) services (5).

Overcrowd in the ED across the world causes multiple challenges on a daily basis. Some examples are the excessive length of stay for patients with a low priority level, the possibility of worsening during the wait in the

triage area, and finally the self-discharge, commonly referred to as people who leave the ED without being seen (LWBS) by a physician, often without informing the triage staff (6). The percentage of LWBS patients appears to be variable between hospitals and across different countries: (0.84% - 15% in the USA, 1.1% - 10.1% in Australia, 3.26% is the average in England). Lowest rates were observed in Asia: 0.36% in Hong Kong and 0.1% in Taiwan. In 2015, the percentage of LWBS in Italy was 2.1% and varies from 0.1% (Friuli Venezia Giulia) to 5.9% (Lazio Region) (6).

Patients who present to an ED and leave without being seen by a physician represent a safety concern because they may become severely ill and experience adverse events as a result of lacking or delayed ED treatment (7).

This phenomenon is also a useful indicator of the emergency care's quality (8). In the USA, in 2012 LWBS rates have been included among the 10 indicators of performance in the national quality forum (6). Furthermore, a systematic literature review of articles from USA, UK, Sweden and Canada, showed that patients LWBS, unplanned re-attendance within a maximum of 72 hours, mortality/morbidity, and number of unintended incidents have been the most highlighted performance measures that related directly to the patient (9).

Aim

The aim of this study has been to investigate the effects of the COVID-19 pandemic on the phenomenon characterised by patients who leave the Emergency Department without being seen, comparing it with rates related to the period before the pandemic.

Materials and Methods

We carried out a retrospective cohort study that included all ED visits from 1st January 2013 to 31st December 2018 in a University Hospital in Italy compared to those related to the period between 1st February 2020 and 31th October 2020. We collected data from the Hospital Information System (HIS), a

database that includes all visits occurring in the Emergency Department and collects: patient demographics, admission information, visit and discharge dates and hours, ICD-9-CM diagnosis at discharge, reported symptoms on arrival, status at discharge (e.g., dead, hospitalised, or discharged at home) and triage score (from white to red), the results were analysed with STATA 12.0 (StataCorp LP, College Station, Texas).

Ethical Consideration

The study protocol was approved by the Management Office of the Perugia University Hospital in June 2021. Privacy and anonymity were guaranteed during all phases of the study.

Results

During the 5 years investigated 26,344 out of 300,372 patients who attended the ED left the triage area before being seen, corresponding to 8.77% of the total accesses. This category of patients is nearly equally divided between male (14,385; 55.6%) and female (11,959; 45.4%); and they also were quite young, with the average patient age being 39 years (median 35; range 16-89; interquartile range [IQR] 26-53). Of these patients, 6.50% (19,551) returned within 72 hours. Our results are in line with other national (6) and international studies (7,10) where the profile of LWBS patients describes them as generally males, young, with lower urgency triage allocation and longer waiting times and with a higher risk of re-presenting within 48 hours.

In order to make a comparison with the same phenomenon during the pandemic, we also analysed the ED visits related to the period that goes from 1st February 2020 to 31th October 2020 using the same database. Analysing the data it emerges that during these 9 months there were a total of 1,824 patients who left without being seen out of 30,990 ED accesses equal to 5.88%. It is important to highlight that this latter value is one third lower than the one related to the period investigated prior to the COVID-19 outbreak mentioned above.

Discussion

These findings parallel the ones reported by Cohen et al. which highlighted a LWBS rate in ED decreased by 89.5% compared to pre-COVID-19 time period (1). On the opposite, our results are not in line with the “paradoxical findings” recently reported by Yakobi and Cheng, in which during the COVID period in the USA they noticed a decrease in access to the emergency department but an increase in the rate of LWBS (11).

Our findings could represent a starting point to investigate and better understand the impact of the pandemic on emergency services by comparing the usage of the ED before the COVID-19 outbreak with the equivalent data during the outbreak with specific attention to the rates of patients who leave the department without being seen. Such investigation could help to differentiate actual essential demand from non-essential demand within the ED, which could, in turn, inform quality-improvement policies. The decline in ED visits and in LWBS rates, with the highest declines in months when the pandemic was most severe, may suggest that the pandemic has altered the use of the ED by the public. It could be that people who used the ED as a safety net were exploring alternative avenues in seeking health care because of concerns about the infection risk in hospitals.

Conclusions

This study focused on the phenomenon of patients who leave the ED without being seen by the physician. It did not intend to capture outcomes for all the LWBS patients, but rather focus on the characteristics and predictors surrounding those who continued to return to the same organisation. Similarly, the presented study took place within a medium-sized, urban ED of a single hospital and therefore this limits the generalizability of findings, as the demographics, infrastructure, and resources of the environment may impact the decision of patients of leaving the department. In fact, some of the initiatives described and results derived may not be applicable to EDs operating under differ-

ent constraints and with different patients population.

This study also looked at data pertaining to ED visits between 1st February 2020 and 31st October 2020, the period when COVID-19 pandemic initially struck in Italy. It is important to consider that EDs and health systems have gone through substantial changes during these unprecedented times and this could have potentially shifted many dynamics such as LWBS rates and subsequent healthcare utilisation.

Lastly, the impact of daily ED census on LWBS counts was examined as daily and monthly totals. This means that the hour-to-hour variability throughout the course of the day was not examined possibly contributing significantly to the relationship between ED inpatient registration, which tends to peak in the afternoon-to-evening, and LWBS. Hourly data and possible correlations could be valuable areas to further investigate on.

Thanks to this analysis we can try to draw some conclusions in relation to a problem that is of great relevance and importance for the management and efficiency of the Emergency Department.

Both prior and during the pandemic, if all patients presenting to the ED really needed emergency medical treatment, we should aim a LWBS rate of zero. However, this goal could be unrealistic, considering that part of LWBS patients often arise from patients for whom different, and often more appropriate, health services should have been considered in the first place (8). Moreover, symptoms that might initially look urgent, could naturally resolve or get better so that patients no longer think they need to wait to be seen in ED.

Our results showed a reduction of both general access and LWBS rates in ED during the pandemic.

The Covid-19 outbreak has brought about countless changes in healthcare management, in the economy, in lifestyle and people's habits. Actions were taken with the introduction of social distancing, use of personal protective equipment and more or less stringent lockdown periods. These elements, together with the fear of contracting the virus, has limited people access to healthcare services and, in turn, the number of those that did not wait to be seen by the clinician after booking in the ED.

Based on what emerged from this study, it would be interesting to investigate, if there has been a real

reduction in improper accesses, how can this result be at least partially maintained. Moreover, it could be analysed if the reductions observed for non-deferrable pathologies actually has hidden missed accesses and what have been the consequences on the mortality of the population from specific causes.

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Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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