

LETTER TO THE EDITOR

Acute asthma severity scores for appropriate triage in Emergency Departments: still a balance of simplicity and validityJavier Navarro-Esteva, MD¹, Pedro Cabrera-Navarro, MD, PhD¹, and Antonio Esquinas Rodríguez, MD, PhD, FACP²¹Pulmonary Department, Hospital Universitario Gran Canaria "Dr. Negrín", Las Palmas, Spain and ²Intensive Care and Noninvasive Ventilatory Unit, Hospital Morales Moseguer, Murcia, Spain

Patients with acute asthma exacerbation (AAE) represent a growing health problem in the Emergency Departments (ED) [1–5]. The assessment of AAE severity is of great importance because it will determine the level and place of care [6]. In this sense, tools to assess acute asthma severity are helpful [9]. Dankner et al. [7] retrospectively tested a simplified severity score (SSS) on more than 500 adult patients that visited an ED for AAE. The following variables were included in the SSS upon arrival: pulse rate, respiratory wheezes, rales, prolonged expiration, oxygen saturation and the use of accessory muscles. The severity of the AAE was graded as mild, moderate or severe.

We have read with interest this interesting original contribution. There are, however, a few issues we think are noteworthy to review. In regard to patient selection and diagnosis, the authors recruited adult patients younger than 35 years so the results may not be applicable to other age groups. It is also unknown if the diagnosis of asthma was made prior to the ED visit [8].

The measurement of bedside clinical signs is limited for different reasons: (A) interpretation of clinical signs depend on the subjectivity and experience of the treating physician. Obviously, patients with most severe AAE will present the worst physical findings. (B) Although PF is the gold standard, most EDs do not have the capacity or expertise to obtain this measurement in a meaningful way. The authors stated that baseline PF values were available in close to 50% of patients. In this case, they should analyze their data and compare it to the SSS, since this is a good way to suggest validity. (C) An additional patient's factor not included in the score is alertness [9]. Even though somehow subjective, it may help the clinician in the patient's assessment.

There are also aspects relevant to effectiveness of therapy that, although not practical for a simplified score, ought to be taken into account in everyday practice: poor asthma control, noncompliance with medications, intake of high dose

medication, psychiatric issues, socioeconomic status, access to health care and exposure to cigarette smoke. Some of these might be determinant in deciding to hospitalise someone with a "mild" AAE.

Regarding the treatment used, it is surprising that fewer than 60% of patients with moderate AAE and fewer than 80% of patients with severe AAE received systemic steroids. In regard to the use of ipratropium, fewer than 40% of patients received this drug because of unavailability. Nowadays, many patients with AAE may receive ipratropium together with albuterol, specially, if symptoms persist. If ipratropium is administered, it might lead to fewer hospitalisations across the whole group of patients. Finally, the use of xanthines across the severity range of AAE was quite high. The available current evidence suggests that they should only be considered for those with AAE severe enough to not respond to first line therapy [8]. Therefore, we can say that treatment of patients in the original study did not follow standard of care. If the patients were under-treated or inappropriately treated, the results can hardly be deemed valid.

The authors conclude that the SSS has a good potential discriminatory capacity to help select patients for discharge or admission. However, they ignore that a dynamic evaluation in the ED of AAE patients is preferred. We know that the timing of response to treatment varies among patients with AAE and also depends on the type – type 1 or type 2 – of exacerbation. In this sense, we think that a repeated SSS value just before clinical decision takes place – e.g. 2–3 h after the first assessment – would test the score's performance in a more reliable manner. So, the lack of a follow-up score limits the validity of results [10].

Workloads and cost implications: the authors argue that use of SSS does not require additional costs in the ED [11]. However, it would be interesting to know about the physician's and nurse's workload, since it could affect adherence with filling up the score. Educational actions to improve compliance with the test may be helpful.

In summary, we agree that a score could help in the decision-making process in the ED, and it should serve as a guide. Given the retrospective nature of the study and the

Correspondence: Javier Navarro-Esteva, MD, Pulmonary Department, Hospital Universitario Gran Canaria "Dr. Negrín", Las Palmas, Spain. E-mail: jnavest@gobiernodecanarias.org

limitations mentioned, the final conclusions can only be orientative. We believe that a simplified score should include an assessment of alertness and that the score should be calculated before and after the patient's first clinical assessment. Further evaluation in prospective studies of such a score in AAE is needed.

Declaration of interest

The authors of the letter titled “Acute asthma severity scores for appropriate triage in Emergency Departments: Still a balance of simplicity and validity” declare that have no conflict of interest of any kind, as well as no funding for the work presented. The authors declared no special thanks for any specific person.

References

1. Brenner B, Kohn MS. The acute asthmatic patient in the ED: to admit or discharge. *Am J Emerg Med* 1998;16:69–75.
2. Adams JY, Sutter ME, Albertson TE. The patient with asthma in the emergency department. *Clin Rev Allergy Immunol* 2012;43:14–29.
3. Rodrigo GJ, Rodrigo C, Hall JB. Acute asthma in adults: a review. *Chest* 2004;125:1081–1102.
4. Rodrigo G, Rodrigo C. Early prediction of poor response in acute asthma patients in the emergency department. *Chest* 1998;114:1016–1021.
5. Rodrigo GJ. Predicting response to therapy in acute asthma. *Curr Opin Pulm Med* 2009;15:35–38.
6. Salmeron S, Liard R, Elkharrat D, Muir J, Neukirch F, Ellrodt A. Asthma severity and adequacy of management in accident and emergency departments in France: a prospective study. *Lancet* 2001;358:629–635.
7. Dankner RS, Olmer L, Ziv A, Betancur AG. Simplified severity score for acute asthma exacerbation. *J Asthma* 2013;50:871–876.
8. Emerman CL. Relapse following treatment of acute asthma in the emergency department. *J Asthma*. 2000;37:701–708.
9. Global Strategy for Asthma Management and Prevention 2012 (Update). Available from: www.ginasthma.org [last accessed 30 Oct 2013].
10. McCarren M, Zalenski RJ, McDermott M, Kaur K. Predicting recovery from acute asthma in an emergency diagnostic and treatment unit. *Acad Emerg Med* 2000;7:28–35.
11. Serinken M, Dursunoğlu N, Cimrin AH. Therapy costs of adult patients admitting to emergency unit of a university hospital with asthma acute attack. *Tuberk Toraks* 2009;57:198–204 [in Turkish].