Does the asthma control test reflect inflammation?

L'"asthma control test" riflette davvero l'infiammazione?

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The present issue of *Multidisciplinary Respiratory Medicine* includes a paper by Bora et al. [1] investigating the relationship between the asthma control test (ACT) and airway inflammation. In a group of stable asthmatic patients admitted to a pulmonary outpatient clinic, the authors carried out the ACT, pulmonary function tests, methacholine bronchial provocation test (MBPT), fractional exhaled nitric oxide level (FeNO), and induced sputum test. All these parameters were re-evaluated at the third month after adjusting patients' medications according to baseline ACT scores. In the paper there is no description of the adjustments made to the therapy.

The conclusion of the authors is that, although ACT scores did not show significant correlations with the airway inflammation parameters tested in the study, a marked reduction in the percentage of patients with MBPT positivity and FeNO > 20 ppb in the follow up may underscore the importance of focusing on the control concept in the management of asthma.

Today asthma treatment is based not only on assessing asthma severity, but also on achieving and maintaining asthma control [2-4]. There is general agreement that a great proportion of people with asthma are not optimally controlled [5,6].

Over a period of several years, numerous tools have been developed to determine the level of asthma control with the main aim of guiding treatment changes [7-9]. A step-up in treatment is recommended in order to achieve asthma control in uncontrolled patients and a step-down is suggested in well controlled patients [2]. ACT has been shown to be useful in the detection of poorly controlled asthma both in adults and children [9-11].

ACT is a 5-item, self-completed questionnaire. The five items evaluate: limitation of daily activities, shortness of breath, night-time waking, use of reliever medication and the patient's perception of asthma control in the 4 weeks prior [9,10]. For each question there are five possible answers, scored from 1 to 5. The total ACT score is the sum of the scores attributed to the five questions, ranging from 5 (poorest asthma control) to 25 (optimal asthma control). ACT has been validated for adult asthmatic patients and there is also a validated version for children [11]. It is accepted that a score lower than 19 indicates poorly controlled asthma.

Since its validation and publication, ACT has been used extensively in clinical trials, mainly because it allows a more "objective" evaluation of asthma control than that performed by the physician during a "spot" visit [11-13]. Moreover, it has been demonstrated that patients also tend to overestimate the level of asthma control and sometimes also the extent of improvement achieved after therapy [12,13]. Finally, previous studies have also confirmed the reliability of the ACT score in guiding clinical decisions [14,15].

In Bora et al.'s study the ACT score did not significantly correlate with airway inflammation parameters and did not change from baseline visit (mean ACT score = 18.98 ± 4.59) to follow up visit (mean ACT score = 19.65 ± 4.11), and patients had good baseline respiratory function (mean FEV_1 = 93.9 ± 13.7%), without significant modification at follow up. Interestingly, despite the lack of respiratory function and ACT score changes, there was a statistically significant reduction in the percentage of pa-

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tients with MBPT positivity (from 59% to 45% of patients, p = 0.029) and FeNO > 20 ppb (from 15 to 14, p = 0.025) at the follow up visit.
These findings could confirm the importance of focusing on control in the management of asthma, as the ACT is a very simple test, and more rapid to perform than a complete spirometry, obviously not burdening for patients or potentially "at risk" as MBPT or FeNO test. This study confirms that ACT can be widely used in clinical practice, but it does not give reliable information and does not correlate with airway inflammation.

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