

Association between treatment awareness and uncontrolled asthma in adolescents

Sir,

Asthma management is oriented toward achieving an optimal control tailoring intensity of care.^[1] Despite the widespread diffusion of asthma guidelines, the percentage of adolescents with well-controlled asthma is still unsatisfactory.^[2] Uncontrolled asthma in adolescents may depend on many factors, including asthma severity, inappropriate workup and treatment, comorbidity, and emotional aspects. Moreover, adherence to treatment and correct medicine use significantly affect asthma control in adolescents.^[3] In this regard, a questionnaire was validated to assess the belief about medicines.^[4] Beliefs about Medicines Questionnaire (BMQ) is a scale to assess the cognitive representation of medicines.^[5] It consists of two parts: BMQ-Specific and BMQ-General. BMQ-Specific consists of an 11-item questionnaire, including two domains assessing necessity “Specific-Necessity” and concerns “Specific-Concern.” These two subscales address beliefs about the necessity of prescribed medicine and concerns regarding the potential side effects of its use. BMQ-General is an 8-item questionnaire that consists of two domains: “General-Harm” and “General-Overuse.” These two subscales address the patient’s beliefs about the potential danger of medications and the patient’s considerations regarding certain aspects of medication overuse. Each item is scored on a scale of

5 (1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree). Higher scores indicate higher perception of the concept represented domain. The maximum score available is 55 for BMQ-Specific and 40 for BMQ-General.

No study investigated the possible association between BMQ and asthma control grade I adolescents, to the best of our knowledge. Therefore, this cross-sectional study consecutively enrolled 87 adolescents (60 males, 27 females, median age 14.2 years) who were newly visited for asthma at a third-level pediatric clinic.

The internal ethics review committee obtained approval for the study (code number: 22253/2017); the parents signed informed consent.

Asthma diagnosis and asthma control grade were documented according to the global initiative for asthma guidelines.^[3]

The statistical analysis was performed using the GraphPad Prism (version 8.4.0) (GraphPad Software, San Diego, CA, USA).

Table 1 shows the outcomes of the study after stratifying for the asthma control grade. Adolescents with uncontrolled asthma had more frequent bronchial obstruction (44% vs.

Table 1: Comparison among the 3 groups of adolescents with asthma, stratified as: well controlled, partially controlled, and uncontrolled, according to global initiative for asthma guidelines

	Asthma control (GINA)			P ^{##}
	Well controlled (n=48), n (%)	Partly controlled (n=30), n (%)	Uncontrolled (n=9), n (%)	
Gender: Male, n/N (%)	33/48 (68.7)	22/30 (73.3)	5/9 (55.5)	0.59
Age (years)	14.8 (13-17)	14.5 (13.5-17.3)	14 (12.7-17.1)	0.85
FVC (percentage predicted)	101.5 (93.7-109.5)	101.5 (91.2-108.7)	95 (82-96)	0.13
FEV ₁ (percentage predicted)	97.5 (91.7-107.2)	101.5 (93.5-111.7)	90 (72-100)	0.05
Bronchial obstruction (FEV ₁ <80% predicted), n/N (%)	3/48 (6.2)	1/30 (3.3)	4/9 (44.4)	0.0005[#]
FEV ₁ /FVC	83.4 (79.9-87.8)	87.6 (84.1-90.9)	83.7 (70-90.8)	0.10
ACT score	24 (23-25)	22 (21-22)	16 (15-17)	<0.0001
BMQ-Specific				
Specific-Necessity	16 (14-19)	18 (75-20)	20 (17-21)	0.0456
Specific-Concern	13 (11-15)	13 (9.7-15)	14 (12-19)	0.1330
BMQ-General				
General-Harm	9 (8-11)	9 (8-10)	13 (10-15)	0.0951
General-Overuse	10 (8-11)	9 (7-11)	12 (9-14)	0.0118

[#] P: Chi-square test; P values in bold when significant. Figures represent median values (unless otherwise specified) and figures in squared parentheses represent 1st and 3rd quartiles; figures in round parentheses represent column percentages. GINA: Global initiative for asthma, BMQ: Beliefs about medicines questionnaire, ACT: Asthma control test, FVC: Forced vital capacity, FEV₁: Forced expiratory volume in 1 s

3.3% in partly controlled and 6.2%, $P = 0.0005$), the lowest asthma control test scores ($P < 0.0001$).

Concerning BMQ scores, uncontrolled asthmatics had the highest scores for the four domains. Statistical significance was observed for the Specific-Necessity ($P = 0.0456$) and the Generic-Overuse ($P = 0.0118$).

The present study demonstrated that adolescents with uncontrolled asthma recognized the need to take medicines for asthma, but at the same time, they believed that drugs were detrimental. These conflicting beliefs are not surprising as asthma is a chronic disease, and many of them experienced persisting symptoms. Thus, uncontrolled adolescents were aware that they needed to be treated. On the other hand, adolescence is a critical period of life associated with emotional distress. Adolescents with uncontrolled asthma more frequently had bronchial obstruction. As a result, adolescents display poor adherence to prescribed treatments. In other words, a vicious circle feeds itself. Consequently, fear of medicines supports uncontrolled asthma, even though there is an awareness of being treated.

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Conflicts of interest

There are no conflicts of interest.

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