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Scientific letter

Use of Guidelines and Protocols for the Management of Chronic Cough. A Physician's Survey

Encuesta médica sobre el uso de guías y protocolos para el manejo de la tos crónica

Dear Editor,

Cough is one of the most common incident symptoms in patients seeking medical care. Chronic cough (CC) is defined as a cough lasting > 8 weeks and it is estimated to affect nearly 10% of the adult population.[1] Several studies have described the large impact CC has on patient's quality of life, psychological status, and on social life.[2,3] The diagnosis and management of patients with CC is frequently challenging: even if a diagnosis is reached and appropriate treatment is administered, cough persists in many patients (refractory CC), whereas in others, no specific cause is identified after an exhaustive diagnostic work-up (unexplained CC).[4]

In Spain, CC is managed by different specialists (mainly pulmonologists, allergists, and family physicians). In a previous work, we surveyed physicians treating CC patients and described high frequency of use of the Spanish Society of Pneumology and Thoracic Surgery Guidelines (*Normativa SEPAR*) for CC by pulmonologists, but not by allergists or family physicians, and scarce availability of protocols for CC at working centres.[5] In this work, we investigate further if there are differences between physicians using/not using CC guidelines/protocols in how they manage the diagnosis and follow-up of CC patients.

Information was obtained through an anonymous online survey, distributed by the Spanish scientific societies SEPAR, SEAIC, SemFYC, SEMERGEN and SEMG to their affiliates (pulmonologists, allergists, and family physicians). The only requirement to participate was that these specialists were active. The study was conducted following usual ethical principles. Questions included, among others, the frequency of use of CC guidelines (responses from 1 = never to 4 = very frequently), availability of protocols at their work centres (Yes/No), and frequency of diagnostic tests performed to study CC (scored from 1 = never to 10 = always). Physicians were also asked when they considered a cough as CC (lasting > 4 weeks, >8 weeks, or >12 weeks) and what they use to do after diagnosing patients with refractory/unexplained CC (scoring from 1 = never to 4 = very frequently the following options: initiate treatment and assume follow-up, initiate treatment and refer to another specialist, or refer the patient to another specialist without initiating any treatment).

Based on the responses given to questions on CC guidelines and availability of CC protocols, two groups were differentiated: (1) those who follow CC guidelines frequently/very frequently or/and have protocol for CC at their practices; and (2) those who do not follow CC guidelines frequently/very frequently and do not have protocol for CC.

We compared specialists in the group using guidelines/protocols with those not using guidelines/protocols regarding responses on CC definition, percentages who scored 8–10 the frequency of the different diagnostic tests performed to study CC (indicating high frequency of indication), and whether the three different specialties assumed the follow-up of refractory/unexplained CC patients. Frequencies are presented and the Chi-square test was used for comparisons.

The survey was completed by 92 pulmonologists, 62 allergists, and 620 family physicians. The SEPAR guidelines for CC was the most commonly document used for CC management (percentages declaring using it frequently/very frequently: 87.0% pulmonologists, 43.5% allergists, 49.0% family physicians). Other guidelines were seldom mentioned. The percentages who declared to have protocols for the diagnosis and for the treatment of CC at their clinics were, respectively, 16.3% and 10.9% pulmonologists, 21.0% and 9.7% allergists, and 9.2% and 7.3% family physicians.

Among pulmonologists, allergists, and family physicians, respectively, there were 81 (88.0%), 36 (58.1%), and 322 (51.9%) using guidelines/protocols and 11 pulmonologists (12.0%), 26 allergists (41.9%), and 298 family physicians (48.1%) not using guidelines/protocols.

The median (interquartile range) number of CC patients seen in the last week ranged from 5 to 7 in those using guidelines/protocols and from 2.5 to 5 in the group not using guidelines/protocols. For pulmonologists, the figures were 7 [3–15] in the group using guidelines/protocols vs. 5 [2–8] in those not using guidelines/protocols; for allergists figures were 5 [2–8] vs. 2.5 [1–5]; and for family physicians, 6 [3–15] vs. 4 [2–10], respectively. Among those using guidelines/protocols, a higher (although statistically non-significant) percentage of pulmonologists (61.7%), allergists (52.8%), and family physicians (45.7%) identified CC as cough lasting over 8 weeks compared to clinicians not using guidelines/protocols (27.3% [$p = 0.065$], 30.8% [$p = 0.085$], and 41.9% [$p = 0.353$] respectively).

Although with discrepancies between the three specialties, in general, clinicians following guidelines/protocols scored higher the indication of different diagnostic tests, especially those searching for extra-pulmonary disease such as blood count, total IgE, specific IgE, *Chlamydia*/*Mycoplasma* serology, and oesophageal pH test, with higher percentages scoring 8–10 compared to physicians not using guidelines/protocols (Table 1).

Pulmonologists, allergists and, to a leaser extend, family physicians using guidelines/protocols declared to assume the treatment and follow-up of refractory/unexplained CC patients more often (92.6%, 72.2%, and 87.0% respectively) than did those not following guidelines/protocols (72.7% [$p = 0.037$], 46.2% [$p = 0.038$], and 81.2% [$p = 0.050$] respectively).

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Table 1
Routine diagnostic tests performed to study patients with chronic cough by the different specialties following or not following guidelines or protocols. Percentages who scored from 8 to 10 (indicating the highest frequency of test indication).

	Percentages who scored from 8 to 10[a]								
	Family physicians (n = 620) Using guidelines/protocols?			Pulmonologists (n = 92) Using guidelines/protocols?			Allergists (n = 62) Using guidelines/protocols?		
	Yes (n = 322)	No (n = 298)	p	Yes (n = 81)	No (n = 11)	p	Yes (n = 36)	No (n = 26)	p
Thorax radiography	68.0	71.5	0.348	95.1	100.0	0.451	52.8	46.2	0.607
Simple spirometry	40.7	34.6	0.116	79.0	100.0	0.092	91.7	84.6	0.387
Bronchodilation test	52.2	48.0	0.297	95.1	90.0	0.569	86.1	80.8	0.573
Methacholine test	1.6	0.7	0.299	14.8	9.1	0.609	25.0	23.1	0.861
FeNO	1.9	0.3	0.072	46.9	45.5	0.927	61.1	50.0	0.384
Capsaicin test	1.2	0.3	0.207	1.2	0.0	0.711	2.8	0.0	0.392
Blood count	55.9	43.6	0.002	56.8	18.2	0.016	55.6	42.3	0.303
Total IgE measurement	37.3	26.2	0.003	51.9	27.3	0.126	69.4	42.3	0.033
Specific IgE	22.4	13.8	0.006	23.5	18.2	0.696	61.1	34.6	0.039
Chlamydia/*Mycoplasma* serology	5.6	2.0	0.021	2.5	0.0	0.598	11.1	3.8	0.300
Oesophageal pH test	4.3	1.0	0.011	6.2	0.0	0.397	13.9	3.8	0.187

[a] Frequency of diagnostic tests performed were score between 1 = never and 10 = always. The same score could be applied to different diagnostic tests. FeNO: Fractional exhaled nitric oxide.

Outcomes from this survey revealed differences between those who use or not guidelines/protocols for CC. Clinicians following guidelines/protocols seem to see more patients with CC, identify CC with an 8-week duration more frequently, indicate diagnostic tests more frequently, especially those in search for extra-pulmonary disease, and assume the follow-up of refractory/unexplained CC patients more often. Thus, they are more involved in the frequently challenging process of diagnosing and managing CC. However, even in the group using guidelines/protocols, less than 60% identified CC with an 8-week duration, suggesting the need for expanding the knowledge of CC diagnosis and management further. In the interpretation of other findings, i.e., the percentages who indicate different diagnostic tests, it must be considered that clinical practice differs among centres, and diagnostic tests performed by family physicians (for example spirometry or blood analysis) may not need to be repeated by other specialists if the results are available.

The percentage who declared using guidelines/protocols, except for pulmonologists, must be considered low, given that this survey was likely responded by physicians interested in CC. The SEPAR document, published in 2015,[6] was widely mentioned among pulmonologists, but to a lesser extent by allergists and family physicians, suggesting that future recommendations for diagnostic work-up, referral pathways between specialists and treatment of CC patients must be agreed by all involved specialties.

In conclusion, guidelines/protocols are mostly used by pulmonologists and less by allergists and family physicians. As CC is a frequent reason for consultation, it is important to homogenize the management of CC by implementing practical guidelines and protocols agreed by the different specialists involved in CC patients care.

Authors' contribution

All authors have contributed significantly to the research and preparation, revision and final production of the manuscript and approve its submission.

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Conflicts of interest

Javier Domínguez-Ortega has received payment for consultancy services and presentations from Leti Pharma, Mundipharma, AstraZeneca, Chiesi, Novartis, GSK, MSD, Sanofi, and Teva.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.opresp.2022.100172.

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