

Knowledge of pediatricians in Rio de Janeiro, Brazil, about inhalation therapy in asthmatic children

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ABSTRACT

Background: Despite the numerous guidelines on the diagnosis and treatment of asthma, there are data that indicate that general pediatrician's knowledge of the disease and its preferred treatment is limited, which may influence the quality of care given to asthmatic children. The purpose of this study was to describe pediatrician's knowledge of spacers and of concepts of childhood asthma, as well as their prescribing habits concerning inhalation therapy, in the public health system of the city of Rio de Janeiro.

Methods and results: A descriptive cross-sectional study was performed in a sample of 72 pediatricians from the public health system of Rio de Janeiro. A questionnaire was used to assess prescriptions for spacers, the reasons why spacers were not used, the models employed, classification of asthma according to clinical severity and symptom frequency, recommendation for the correct spacer volume according to age group, and the concept of asthma as an inflammatory disease.

Seventy percent (51/72) of the physicians did not routinely prescribe the spacer. The reasons given were as follows: a) lack of spacer availability in the public health system in 55 % (28/51); b) high cost in 57 % (29/51); c) the complexity of their use in 35 %

(18/51); d) unwillingness to use aerosol type medication in 15 % (8/51), and e) lack of knowledge of their function and utilization in 59 % (30/51). Of the 30 % (21/72) who reported they regularly and routinely prescribed the spacer in daily practice, 48 % (10/21) stated that this routine prescription, even when indicated, was below 25 % of what was expected and makeshift models were preferred by 24 % (5/21) of the pediatricians. Six percent of the pediatricians chose the appropriate spacer volume according to age group, 62.5 % (45/72) reported that they classified asthma according to severity, 16 % (7/45) gave the correct answers when classifying asthma according to national consensus, and 22 % (16/72) considered asthma to be an inflammatory disease.

Conclusions: The results of this study suggest that pediatrician's knowledge of inhalation therapy with dosed aerosol spacers and of asthma-related concepts in the public health system in Rio de Janeiro is limited. This may restrict the quality of care given to the asthmatic children in the city and suggests the need for training programs for the management of asthmatic children.

Key words: Asthma in children. Public Health System. Inhalation therapy. Spacers.

RESUMEN

A pesar de la existencia de numerosos consensos que orientan sobre el diagnóstico y tratamiento del asma, existen datos que indican que el conocimiento de los pediatras generalistas acerca de la enfermedad y de la modalidad preferente de tratamiento es limitado, lo que puede influir sobre la calidad de la atención a los niños asmáticos. Este estudio

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tuvo como objetivo valorar los conocimientos y prácticas de los médicos pediatras de la Red Básica de Salud del municipio de Río de Janeiro con respecto al empleo de cámaras espaciadoras y también en cuanto al concepto del asma en la infancia.

Métodos y resultados: Se ha realizado un estudio transversal descriptivo con una muestra de 72 pediatras de la Red Básica de Salud de Río de Janeiro, evaluados por medio de un cuestionario, con relación a la prescripción del espaciador, a los motivos para abstenerse de utilizar los espaciadores, a los modelos empleados, a la clasificación del asma por gravedad clínica y por frecuencia de síntomas, a la recomendación del volumen correcto del espaciador por edad y al concepto de asma como enfermedad inflamatoria.

Se ha observado que 70 % (51/72) de los médicos no prescriben el espaciador como rutina. Los motivos alegados para no hacer esta prescripción fueron: 55 % (28/51) por no estar disponibles en la Red, 57 % (29/51) por ser de costo elevado, 35 % (18/51) por la complejidad en su utilización, 15 % (8/51) por no utilizar fármacos en forma de aerosol y, 59 % (30/51) por el desconocimiento de su función y utilización. De los 30 % (21/72) que han alegado haber efectuado la prescripción regular del espaciador en la práctica diaria, 48 % (10/21) han afirmado que incluso cuando indicado, la prescripción rutinaria era menor que 25 % de lo esperado, siendo que los modelos artesanales fueron indicados en 24 % de los casos. Seis por ciento de los pediatras han elegido el volumen adecuado del espaciador por edad, 62,5 % (45/72) han afirmado clasificar el asma por gravedad, 16 % (7/45) acertaron en las cuestiones con respecto a la clasificación del asma por el consenso nacional y 22 % (16/72) han entendido el asma como enfermedad inflamatoria.

Conclusiones: Los resultados han sugerido que en nuestro medio resulta limitado el conocimiento de los médicos con respecto a la terapia por inhalación con aerosol dosimetrado y espaciadores y con respecto a algunos conceptos relativos al asma. Este hecho puede limitar la calidad de la atención prestada al niño asmático en Río de Janeiro e indica la necesidad de programas de capacitación para atención a niños asmáticos.

Palabras clave: Asma infantil. Atención primaria. Terapéutica inhalatoria. Cámaras espaciadoras.

INTRODUCTION

There is increasing prevalence, severity and mortality of asthma worldwide¹⁻⁴, even though this disea-

se has been the subject of top national and international congresses recommending the “best practices” relating to diagnosis and treatment⁵. One of the reasons contributing to the rise in mortality is inadequate treatment⁶. Reports indicate that inhalation is the most common treatment in a crisis and during the intercritical period⁷⁻⁹. Nevertheless, data from different countries show a gap between general recommendations and daily practice^{7,10,11}. The poor knowledge of physicians about asthma and about the correct use of the spacer and dosed aerosol, which are essential in treating asthma, especially in the pediatric age group, has been indicated as a decisive factor in the inadequate instructions to patients and their families and in the consequent unsuitable technique adopted for children^{6,12}.

Rio de Janeiro data shows that asthma is a widespread disease in this area. In 1998, around 235,175 children under 5 years old were attended in outpatients units. Wheezing diseases accounted for 17 % (39,980) of all consultations registered.

Today, patients seeking municipal pediatric clinics in Rio de Janeiro do not have access to spacers and dosed aerosols. Nor is there any information available about the knowledge of physicians concerning asthma and the prescription of spacers in inhalation therapy for children attended in these primary health care units.

The purpose of this study was to discuss the knowledge and practice of pediatricians with regard to prescribing spacers as an aid to inhalation therapy for asthmatic children and to learn about concepts referring to bronchial asthma in childhood. The results may be used in preparing future asthma-control actions in the State.

MATERIAL AND METHODS

A cross-sectional study was undertaken to describe the knowledge and practices of physicians in the Rio de Janeiro public health system attending patients under 14 years old.

The sample consisted of pediatricians who spontaneously participated in one of the two of refresher courses on asthma in childhood organized by the local health secretary in August and October 2000.

The variables under study were age, gender, time since graduation, spacer prescription, alleged reasons for not routinely using the spacer, spacer models normally employed in medical practice and the classification of asthma according to its clinical severity. The 2nd Brazilian Consensus on Asthma Treatment⁹ was adopted as a benchmark. Professional knowledge on the following items was

also evaluated: classification of asthma according to the frequency of respiratory symptoms presented by the patient, correct volume of the spacer according to age group, and the concept of asthma as an inflammatory disease using as reference the decisions made at the 2nd Brazilian Consensus on Asthma Treatment⁹. A self-applicable questionnaire with a total of 25 open and closed questions responded by pediatricians, before they started the course classes.

The data was processed using the EpiInfo 6.02 application and the average, standard deviation (SD) and frequency distribution of the variables were calculated.

This study was approved by the local Rio de Janeiro Ethics and Research Commission.

RESULTS

Seventy-two of eighty physicians present agreed to answer the questionnaire, 85.2% of whom were female. The average age of the professionals was 44 years old (67) and the average time since graduation and professional practice was 20 years.

It was found that 70% did not prescribe the spacer on a routine basis. The reasons alleged for not prescribing its use were: 55% (28/51) since they are not available in the local health system, 57% (29/51) due to its high cost, 35% (18/51) due to its complex utilization, 15% (8/51) due to the non utilization of aerosol medicines, and, 59% (30/51) due to the lack of knowledge on its function and utilization (table I). Forty-eight percent (10/21) of the 30% (21/72) that claimed to regularly prescribe the spacer in daily practice affirmed that even when it was convenient the routine prescription was less than 25% of the expected. The makeshift models were preferred by 24% (5/21) of the pediatricians, the manufactured by 19% (4/21) and 57% (12/21) of them could not recommend any model although they claimed to use this device. When asked about the most appropriate volume for patients under and over three years old, it was found that only 6% (4/72) were able to suitably choose the volumetric content of the spacer chamber according to the patient's age group. Concerning the practice of classifying the severity of the asthma during a consultation, 62.5% (45/72) stated that this was routine practice. Nevertheless, when asked about asthma classification according to the frequency of respiratory symptoms adopting the benchmark of the 2nd Brazilian Consensus on Asthma⁹, it was found that only 16% (7/45) answered correctly. The remaining 84% (38/45) either did not know how to classify or respond, or answered incorrectly. Only

Table I

Justification for failure by Rio de Janeiro pediatricians to prescribe spacers (2000)

Reasons given	Number	Percentage
Lack of knowledge	30	59
Non-prescription of inhalation	8	15
Complex use	18	35
High cost	29	57
Unavailable in the public health system	28	55

22% (16/72) demonstrated the knowledge that asthma is an inflammatory disease.

DISCUSSION

The results of this study showed that pediatricians did not prescribe the use of the spacer in inhalation therapy on a routine basis, and the ignorance about its use and function is the main reason for this behavior.

The Brazilian consensus on treating asthma that recommends inhalation as the preferable treatment and which has been available in Brazil since 1994¹³ and the results of this study suggest that few physicians adopt this practice. Despite the various existing recommendations for the utilization of inhalation in the treatment of asthma^{1,9}, little progress has been made on this subject, oral administration still being preferred in the treatment of asthma.

Moreover, the majority of the pediatricians did not consider asthma to be an inflammatory disease and could not classify this disease by severity, suggesting that the general reports on their own are not able to update concepts and modify the conduct of medical professionals, even the most experienced with 20 years of pediatric practice.

Since asthma is essentially a disease attended in outpatient units¹⁴ it is possible that this gap existing between the national consensus and the knowledge and practices of pediatricians in the Rio de Janeiro local public health system may be detrimental to the quality of care given to the asthmatic child.

Despite the differences in methodology, the results of the study herein coincide with the literature^{15,6}, which show that a significant proportion of professionals who participate directly in the treatment of asthma has a limited knowledge about the disease-related concepts and the use of spacers and dosed aerosols. Although this work does not intend to study the reasons for these constraints, it is known that in Brazil and in other countries^{14,6}, the for-

mal medical training to use the resources designed for inhalation therapy is not included in the syllabus of most graduate and post-graduate medical schools, which may have contributed to the results achieved.

The belief is that this sample, albeit appropriate, may point to the tendency among Rio de Janeiro pediatricians. It is possible that the physicians who have spontaneously attended the aforementioned course have been those less interested in the topic being updated, and that the real situation would be better than that encountered. However, it is hard to conceive that the use of spacers fixed to pressurized dosed nebulizers is greater than verified (30 %), since there are no aerosol medicines and spacers available for patients in the Rio de Janeiro local health system. On the other hand, if the sample had mostly involved physicians interested in asthma, and therefore more apt, the actual situation could be worse than that under study. The fact that a self-completing questionnaire was used, in which the name of the professional was not disclosed and all information was confidential, reinforces the impression that the answers were genuine.

Evidence of the restricted knowledge of the pediatricians on the inhalation therapy in bronchial asthma, possibly influencing daily medical practice, suggests the need for a training program for Rio de Janeiro pediatricians. The idea of this initiative would be to improve the understanding of the disease, familiarize physicians with the most appropriate means available for the treatment of asthma and encourage the adoption of national recommendations on treating asthma. Another important and complementary action would be to introduce formal training in medical faculties.

REFERENCES

1. Szilagyi PG, Kemper KJ. Management of chronic childhood asthma in the primary care office. *Pediatric Annals* 1999; 28:43-52.
2. Solé D, Naspitz CK. Epidemiologia da asma: estudo ISAAC (International Study of Asthma and Allergies in Childhood). *Rev Bras Alergia Immunopatol* 1998;21:38-45.
3. Kun HY, Oates RK, Mellis CM. Hospital admissions and attendances for asthma – a true increase? *Med J Aust* 1993;159: 312-3.
4. Juel K, Pedersen PA. Increasing asthma mortality in Denmark 1969-88 not a result of a changed coding practice. *Ann Allergy* 1992;68:180-2.
5. Crim C. Clinical practice guidelines actual vs actual clinical practice. The asthma paradigm. *Chest* 2000;118:62S-64S.
6. Interiano B, Guntupalli KK. Metered-dose inhalers: do health care providers know what to teach? *Arch Intern Med* 1993; 153:81-5.
7. Gazarian M, Henry RL, Wales SR, Micallef BE, Rood EM, O'Meara MW, et al. Evaluating the effectiveness of evidence-based guidelines for the use of spacer devices in children with acute asthma. *Med J Aust* 2001;74: 394-7.
8. Powell CVE. Multidisciplinary effort can help update approach to acute asthma treatment. *Arch Dis Child* 2001;84: 142-6.
9. Sociedade Brasileira de Pneumologia e Tisiologia, Sociedade Brasileira de Alergia e Imunopatologia, Sociedade Brasileira de Pediatria. III Consenso Brasileiro no Manejo da Asma. *J Pneumol* 2002;28 (Supl 1):S1-S28.
10. Finkelstein JA, Lozano P, Shulruff R, Inui TS, Soumerai SB, Ng M, et al. Self-reported physician practices for children with asthma: are national guidelines followed? *Pediatrics* 2000; 106:886-96.
11. Ockene JK, Zapka JG. Provider education to promote implementation of clinical practice guidelines. *Chest* 2000;118: 33S-9S.
12. Scott-Smith W. Scoring inhaler technique in general practice. *The Practitioner* 1986;230:96.
13. Sociedade Brasileira de Alergia e Imunopatologia, Sociedade Brasileira de Pediatria, Sociedade Brasileira de Pneumologia e Tisiologia. 1.º Consenso Brasileiro no Manejo da Asma. Fortaleza-Ceará. Boehringer De Angeli. 1994; p. 42.
14. Evans D, Mellins R, Lobach K, Ramos-Bonoan C, Pinkett-Heller M, Wiesemann S, et al. Improving care for minority with asthma: professional education in public health clinics. *Pediatrics* 1997;99:157-64.
15. Jones JS, Holstege CP, Riekse R, White L, Bergquist T. Metered-dose inhalers: do emergency health care providers know what to teach? *Ann Emerg Med* 1995;26:308-11.