Asthma and chronic obstructive pulmonary disease (COPD) are the commonest chronic respiratory conditions. They are also the two worst controlled conditions in clinical practice. According to three promising studies presented to the annual congress of the European Respiratory Society (ERS) in Munich, the use of mobile phones, websites and wi-fi technologies can improve this situation.

Using wi-fi to manage COPD

The first study was conducted by a Spanish team, represented by Carme Hernandez from the Hospital Clinic and the Municipal Institute for Medical Research (IMIM) in Barcelona. It sought to assess, in patients suffering from COPD, what would be the benefits of an integrated programme aimed at improving the management of exacerbations, using a portable wireless device for daily self-monitoring. The idea was that the handheld device would collect the principal clinical data, such as symptoms, expectoration quantity and use of drugs designed to provide patient relief. The device would also make it possible to record the main respiratory functions, evaluated by FEV1 and oximetry.

A total of 160 patients were enrolled in the randomised controlled study and divided randomly into two groups, one treated in the traditional way and the other following the integrated care programme with the support of the wireless device, specially developed for the trial and linked to a secure data processing centre. The initial result of the preliminary analysis conducted on 82 patients indicates a high level of both patient and professionals satisfaction. Not only did 94% of patients continue using the system after the information sessions, but almost three-quarters (73%) found it very useful after three months of monitoring. The spirometric tests carried out at home and transmitted using the wireless device were found to be of satisfactory quality in 65% of cases, even though the patients were aged 75 on average, in poor health and severely affected (with a FEV1 below 50% of the predicted value).

Controlling asthma via the Internet

In the study presented by Min-Li Chang, of Taipei’s Chang Gung Memorial Hospital, 134 patients assessed the degree of control of their asthma, a week before their appointment for a traditional consultation, using a remote consultation system freely available at www.medicalgrid.org/eng/. The system, which sought to replace the face-to-face contact with care providers, doctor or nurse, allowed patient self-assessment of the clinical control of their asthma, and had the capacity to generate treatment recommendations on the basis of the GINA (Global INitiative for Asthma) international guidelines. This should be particularly useful in helping patients distinguish an intrinsic exacerbation of their condition from the influence of aggravating factors, and proposing the most appropriate treatment response.

Study results show a high degree of convergence between the remote self-assessment and the opinion of four asthma specialists consulted in parallel. In the case of only eleven patients (8.2%) was there a divergence of opinion. "Approximately 70% of patients were able to improve their asthma control by following the computerised recommendations after one month of monitoring. Only two patients, whose condition was originally assessed by the programme as being well under control, had deteriorated one month into the trial," said the authors of the study. “Thus, the system of remote consultation by internet provides accurate assessment and reliable recommendations for both patients and doctors,” they concluded.

Mobile telephones help as well

Telephones, and particularly today’s mobile phones, are of course another IT system that can make a valuable contribution to asthma control. An illustration can be seen in the study of 1213 British asthma patients monitored by a large group of general practitioners. As the study’s leader, Hilary Pinnock, of the University of Edinburgh, told the ERS Congress, the patients were randomly divided within existing practice groups. One patient group only provided face-to-face asthma reviews and a second group were offered the option of a telephone review.

A year into the study, questionnaires were sent out to the subjects (teenagers and adults) to assess the degree of asthma control attained, their quality of life, their ability to cope with the challenges of asthma and their confidence in the medical care received. Their responses show not only that telephone assessment is just as effective in terms of asthma control and quality of life, but also, importantly, that the patients with the telephone monitoring option felt better able to manage variations in their condition and had more confidence in the care provided.

“More patients in the ‘telephone option’ group received a review, and this difference in patient response could be interpreted as the result of greater ease of access,” Pinnock concluded. “Indeed, the improvements in the ability to cope and the confidence in care are so encouraging that the telephone assessment option has already been extended to all of our patients.”

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New technologies help treat respiratory disease