

# Internet monitoring strategy for severe asthma patients shown to be effective

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Patients with severe asthma who use an internet-supported strategy and daily monitoring of exhaled nitric oxide (FENO) were able to control their asthma with lower overall dosing of oral corticosteroids (OCS) than patients who underwent usual care, according to research from the Netherlands.

"We know that in patients with prednisone-dependent [asthma](#) it is important to adjust the daily dose of [oral corticosteroids](#) to the lowest possible level in order to reduce long-term side effects," said Simone Hashimoto, M.D., research fellow from the department of respiratory medicine of the University of Amsterdam. "Our study shows that a novel internet-supported strategy including daily measurements of an objective marker of airway inflammation, FENO, and supervision by an asthma nurse allows frequent adjustments of prednisone dose, and leads to significant reduction of total corticosteroid consumption over a six months study period, as compared with patients receiving usual care. This was not accompanied by deterioration of asthma control or asthma-related quality of life."

The findings were presented at the ATS 2010 International Conference in New Orleans.

People with chronic health conditions, such as severe asthma, require continuous medical supervision, which can often be a logistical challenge, not only for overburdened healthcare systems, but for patients themselves, who may not have the time or flexibility to keep frequent appointments. "Internet monitoring allows centralized continuous long-distance support of patients, which can improve the quality of care, reduce the hazards associated with oral corticosteroids tapering, and can prevent drug-induced morbidity and mortality," explained Dr. Hashimoto.

While it was known that in patients with milder

asthma, such programs had shown success, patients with severe asthma had yet been studied.

"Some patients with severe asthma require frequent bursts or even daily use of oral corticosteroids despite treatment with high dose of inhaled asthma medication. This leads to serious long-term adverse effects such as diabetes, blood hypertension, depression and osteoporosis, that may critically affect patients' quality of life and have considerable public health implications," explained Dr. Hashimoto. "Since adverse effects are dose and time dependent, corticosteroids should always be used in the lowest possible dose. In current practice, oral corticosteroid dose adjustments are made periodically by the patient's physician, based on subjective symptoms and signs, and not by objective parameters."

Dr. Hashimoto and colleagues designed a prospective, randomized, parallel, multicenter study with 89 patients with severe asthma study to test the hypothesis that a new internet-based strategy including daily home monitoring of symptoms, lung function, FENO, and regular feedback by an internet asthma nurse, would lead to a significant reduction of corticosteroid consumption without worsening of [asthma control](#) or asthma-related quality of life. In total, 89 patients were randomized to two tapering strategies: usual care, or internet-supported with daily monitoring of FENO, FEV1 and symptoms.

For those assigned to the internet-supported strategy, each patient had a password used to log in to a secure site where they recorded daily symptoms, lung function values, FENO value and dose of medicine that they took in the day. The values were controlled every day by a specialized asthma nurse and once a week patients received instructions about the dose of oral corticosteroids they should use. The process took about 5 minutes per day for the patient, and was well accepted. Patients could also contact the asthma nurse via

the website or email in the event of questions or problems.

The researchers found that among patients assigned to the internet-supported strategy, cumulative 6-month dosing of OCS was significantly lower. "Of course, we hoped to find a positive result, because internet based self-management and management guidance by FENO has already been proven to be successful in adolescents with milder forms of asthma," said Dr. Hashimoto. "However, we were surprised that also in patients with severe prednisone-dependent asthma this strategy proved to be successful. These patients have years of continuous use of oral corticosteroids and a long history of attempts to taper their maintenance prednisone dose without success. This strategy gives them new hope that they can safely reduce the deleterious long-term side effects of prednisone."

"Our findings suggest that this novel internet-based strategy can and should be applied in all patients with severe prednisone dependent asthma to reduce total corticosteroid consumption. Internet technologies as well as biomarker driven therapies will become more and more common in future health care," Dr. Hashimoto concluded. "In the future, we will do more studies on a larger scale, to evaluate whether this strategy should be incorporated in guidelines for management of patients with severe asthma."

Provided by American Thoracic Society

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