News Release

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New Study Finds Inhaler Reminders Dramatically Improve Asthma Controller Adherence

ATS 2014, SAN DIEGO— Reminders prompting asthma patients to take their control inhalers if they miss a dose significantly improve medication adherence, according to a primary-care based study conducted by a research team in Australia. In this six-month investigation, patients receiving reminders took on average 73% of their prescribed doses compared to only 46% in patients who did not have reminders.

The results of the cluster randomized controlled trial were presented at the ATS 2014 International Conference.

Given the fact that poor adherence is an important contributor to poor asthma control and that implementing strategies for improving medication-taking is sometimes impractical in primary-care settings, the study aimed to develop and test a set of adherence intervention tools that would be feasible for use by general practitioners (GPs).

“Adherence is often inhibited by patients’ concerns about medication effectiveness and short- and long-term treatment safety,” said lead author Juliet Foster, PhD, a research psychologist at the Woolcock Institute of Medical Research in Sydney. “Also to blame are the modern, busy lives that we all lead, which can make taking medication a challenge for people with asthma and other chronic conditions.”

In total, the 43 GPs who volunteered for the study enrolled 143 patients between the ages of 14 and 65 who had been prescribed a twice-daily control inhaler for at least one month and scored sub-optimally (<19) on the Asthma Control Test™, a five-question self-assessment tool used to measure asthma control. Individuals who had had a recent asthma exacerbation or who suffered from other chronic respiratory diseases were excluded from the trial.

The researchers tested the effectiveness of two GP-delivered interventions designed to tackle forgetfulness and/or patients concerns about inhaler use. The study participants were split into four groups: one group received twice-daily inhaler reminders for missed does with adherence feedback through a device that allowed for customization of ringtones and ring times; a second group engaged in personalized adherence discussions with their doctors about key barriers to medication-taking; a third group received both interventions; and a control group received active usual care, a routine treatment based on an Australian government-incentivized primary care asthma management program.

All patients used an electronic inhaler monitor called SmartTrack that recorded the date and time of each puff and uploaded that information to a secure website. Reminder patients and their GPs could visit the site at any time to review their medication use, but data were collected covertly for those in the non-reminder groups to enable the researchers to reliably measure differences in adherence between intervention groups.

Patients in the personalized discussion groups completed a short questionnaire about barriers to controller inhaler use before talking to their doctor about their personal treatment concerns, setting asthma-management goals and identifying strategies with which to achieve them. GPs who delivered personalized discussions attended a two-hour in-person workshop on empathic communication and engaged in additional training by phone over the course of the study. GPs in this group also received a set of communication tools to help them support their patients and understand their treatment perspectives.

“Our study demonstrates that provision of reminders and feedback could be extremely effective for changing controller medication-taking behavior in significant and positive ways,” said Dr. Foster, who worked on the trial with Professor Helen Reddel and other investigators. “There could also be an important place for personalized adherence discussions in primary care, as GPs were very positive about the tools we provided, but longer studies may be needed to show statistically significant effects over and above active usual care.”

The researchers found that while adherence was significantly higher in the reminder groups than non-reminder groups, and both interventions improved asthma control, there was no significant difference in asthma control between the four study groups or between the reminder and non-reminder groups.

“While we were initially surprised by this, when we investigated further, we saw that, in line with prescribing patterns in Australia, patients were prescribed high controller doses at baseline,” Dr. Foster explained. “The modest adherence in the non-reminder groups may have been enough to cause change in asthma control from baseline, with higher adherence rates in reminder groups unable to produce further improvement. Improvement in asthma control from baseline in all groups could also potentially have been due to the active usual care interventions, although the effect of inhaler technique education is short-lived if not repeated frequently.”

She also noted that several factors likely influenced the results of the reminder and feedback intervention: patients could see in real-time on the SmartTrack screen when they had last taken a dose; the device prompted patients to take missed doses; and patients and GPs could discuss medication-use data together.

“Patients in reminder groups had access to accurate data on their own controller-taking patterns, probably for the first time in their lives,” Dr. Foster explained. “This, combined with other factors, likely encouraged and reinforced more effective medication habits and routines.”

And while the study’s findings about reminders and feedback are encouraging, she cautions that additional and potentially longer trials are needed to replicate their data.

“Our findings add to previous research by demonstrating that reminders and feedback for controller inhaler use significantly improve treatment adherence, for at least six months, and are considered acceptable and feasible by patients and GPs in real-world primary care settings,” Dr. Foster concluded. “Primary-care-based studies like this one are so important because they provide essential information on the feasibility and effectiveness of interventions when delivered in the very setting in which they may be implemented. While difficult to fund, these trials are key to translating research findings into routine care.”

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** Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.*

Abstract 49603

A Cluster Randomised Controlled Trial Of Inhaler Reminders And/Or Personalised Adherence Discussions For Improving Adherence And Asthma Control Demonstrates The Effectiveness And Acceptability Of Reminders In Primary Care Settings

Type: Scientific Abstract

Category: 02.01 - Adherence (BSHSR)

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Abstract Body

RATIONALE: Poor adherence is an important contributor to inadequate asthma control, and GPs are asked to promote treatment adherence, yet few pragmatic adherence interventions exist for primary care. Our aim was to test the effectiveness of two GP-delivered interventions designed to tackle forgetfulness (by inhaler reminders with adherence feedback (IRF)) and treatment attitudes (by personalised adherence discussions (PAD)), for improving adherence with combination controller therapy and asthma control in primary care. **METHODS**: In a 6-month cluster randomised controlled trial (RCT), we compared IRF, PAD and IRF+PAD with active usual care control (UC); all GPs were trained to provide active UC to their patients with a written action plan and an inhaler

technique check. GPs enrolled their own patients who had been prescribed a combination controller inhaler for ≥3 months and had a suboptimal Asthma Control Test (ACT) ≤19. Electronic inhaler monitors recorded time/date of each puff and uploaded controller use data to a secure website (covertly for non-IRF groups). In IRF groups, inhaler monitors also provided reminder ringtones for missed doses and stated time since last dose taken on a digital screen. Individual IRF patients and their GPs could access graphs of their medication use online. GPs in PAD groups received 2 hours' communication training plus telephone booster training on motivational interviewing and collaborative goal-setting, and were provided with patient-friendly support tools to facilitate brief personalised discussions. ACT (primary outcome) was collected at baseline, 2, 4 and 6 months. Objective adherence data was obtained from inhaler monitors. Intention to treat mixed model analysis incorporated cluster effect and repeated measures. **RESULTS**: 43 GPs enrolled 143 patients (mean age 40.3 yrs±SD 15.2; FEV_1% predicted 77±20; ACT 14.6±3.8). Over 6 months, controller adherence was higher in IRF (73%±26%) than non-IRF groups (46%±28%, p<0.0001). Asthma control improved significantly in all groups (overall mean change in ACT 4.5±4.9, p<0.0001), but there was no significant difference between the 4 study groups (p=0.14) or between IRF and non-IRF groups. GPs rated highly both training (2.96±0.2; 3=completely relevant; 1=not relevant), and intervention tools (80.96±12.35; 100=extremely useful, 0=not at all useful). **CONCLUSIONS**: In this pragmatic primary care-based RCT, inhaler reminders substantially improved controller adherence compared with training GPs in personalised adherence discussions or active usual care; GPs valued all interventions. The complex relationship between controller dose prescribed, dose taken, and asthma control needs further exploration.