Text Reminders Improve Adherence to Antiretroviral Therapy

Pam Harrison

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MIAMI — A real-time monitoring device that sends a text reminder to patients if they do not open their pill container within 30 minutes of a scheduled dose significantly improves adherence to antiretroviral therapy, new research shows.

"One of the limitations of electronic drug-monitoring feedback is that you are not able to intervene in real time to give patients feedback on how they are doing," said Lora Sabin, PhD, from Boston University School of Public Health.

To remedy this, the researchers combined real-time cell phone reminders, triggered by a Wisepill Web-linked medication container, with monthly counseling.

"This 2-part intervention was incredibly effective at improving adherence among both high- and low-adherer groups," Dr. Sabin told Medscape Medical News.

She presented the study here at 9th International Conference on HIV Treatment and Prevention Adherence.

CATS in China

The China Adherence Through Technology Study (CATS) was designed to evaluate the effect of the real-time feedback strategy on adherence rates.

Of the 120 subjects from Nanning, China who were enrolled in CATS, 116 completed the study.

All study participants were provided with a Wisepill Web-linked medication container for 1 antiretroviral medication, and adherence was tracked for 3 months.

These data were used to stratify the cohort into 2 groups; patients who complied with their medication at least 95% of the time were deemed to have optimal adherence, and those who did not meet that threshold were deemed to have nonoptimal adherence.

At 3 months, mean adherence rates were approximately 92% in both cohorts. Patients in the adherence cohorts were then randomized to the intervention group or the control group.

The 61 patients in the intervention group received a text reminder whenever their device failed to open within 30 minutes of a scheduled dose. Adherence data from the Wisepill device was then discussed during the monthly counseling session.
The 55 patients in the control group received no text messages, and Wisepill adherence data were not discussed during the monthly counseling session.

At month 9, mean overall adherence was better in the intervention group than in the control group (96.4% vs 89.2%; \( P = .003 \)). And more patients in the intervention group than in the control group achieved optimal adherence (88.5% vs 52.7%; \( P = .003 \)).

During the study period, mean adherence was better in the intervention group than in the control group both for patients who had optimal adherence at 3 months (92.1% vs 60.5%) and for those who did not (82.6% vs 35.3%).

**Real-Time Intervention**

For patients who had failed to take their dose within the 30-minute time-frame, compliance was better during the subsequent 30 minutes in the intervention group than in the control group (56% vs 43%).

This suggests that immediate feedback does have a real impact on adherence rates, Dr. Sabin said.

"This really is the first evidence we've had that triggered reminders can influence adherence rates in this patient group," she said.

This study illuminates the power of simple, real-time devices like Wisepill for monitoring medication adherence, said Benjamin Young, MD, PhD, vice president and chief medical officer of the International Association of Providers of AIDS Care in Chicago.

"The findings show that, especially among people with lower baseline adherence, real-time text messaging improves adherence," he told *Medscape Medical News*.

He did point out, however, that although this and other studies used 30 minutes as the definition of a "late" medication dose, the US Food and Drug Administration does not insist on such a precise level of medication adherence.

Because antiretroviral therapy is a chronic, decades-long treatment, "insisting on stopwatch-level dose timing is unnecessary, and is likely an unintended barrier to patients' perception of success or failure," Dr. Young explained. But with its mechanism for real-time reporting, "Wisepill can readily capture and interpret treatment results with any time definition of dose timing," he added.

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