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SYMPOSIUM

Mobilizing Your Medications: An Automated Medication Reminder Application for Mobile Phones and Hypertension Medication Adherence in a High-Risk Urban Population

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Abstract

Background:

Hypertension frequently accompanies diabetes mellitus, worsening prognosis and complicating medical care for patients. Low medication adherence with multiple medications is a major factor in the inadequate achievement of blood pressure treatment goals. Widespread access to mobile phones offers a new opportunity to communicate with patients and enhance disease self-management.

Methods:

We recruited 50 high-risk urban patients with hypertension, who are using at least two prescription medications for hypertension, into an open-label trial using medication reminder software on a mobile phone. Medication adherence was assessed by review of pharmacy refill rates before, during, and after availability of the medication reminder software (pre-activation, activation, and post-activation phase, respectively).

Results:

Forty-eight patients completed the study. All subjects were insured by Medicaid, 96% were African-American, and the majority had diabetes mellitus. The proportion of days covered for each study phase was as follows: pre-activation phase = 0.54, activation phase = 0.58, and post-activation phase = 0.46. A significant difference was found between the activation and post-activation phases (p = .001). The increase in measured adherence between the pre-activation and activation phases approached significance (p = .057). Forty-six patients completed the pre- and post-Morisky medication adherence survey. The median score rose from 2.0 at baseline to 3.0 at study completion (p < .001). Average blood pressure and level of control during study period improved significantly after initiation of the study and remained improved from baseline through the course of the study. The 48 subjects who completed the study reported a high level of satisfaction with the medication reminder application at the final study visit.

Conclusions:

A mobile-phone-based automated medication reminder system shows promise in improving medication adherence and blood pressure in high-cardiovascular-risk individuals.

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Abbreviations: (ANOVA) analysis of variance, (BMI) body mass index, (ER) emergency room, (PDC) proportion of days covered, (SD) standard deviation, (SMS) self-reported medication scale, (TCP/IP) transmission control protocol/Internet protocol

Keywords: hypertension, medication adherence, mobile health

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