Periodic telephone counseling for polypharmacy improved compliance and reduced mortality

Wu JY, Leung WY, Chang S, et al. **Effectiveness of telephone counselling by a pharmacist in reducing mortality in patients receiving polypharmacy: randomised controlled trial.** BMJ. 2006;333:522.

Clinical impact ratings: GIM/FP/GP ★★★★★☆☆ Hospitalists ★★★★★☆☆

QUESTION

In patients receiving polypharmacy, does periodic telephone counseling by a pharmacist improve compliance and reduce mortality?

METHODS

Design: Randomized controlled trial.
Allocation: {Concealed}†.*
Blinding: {Unblinded}†.*
Follow-up period: 2 years or until death (mean 23.2 mo).
Setting: Specialist medical clinics in the Prince of Wales Hospital in Hong Kong, China.
Patients: Patients who were prescribed ≥ 5 drugs on ≥ 2 consecutive clinic visits were assessed for compliance with the drug regimen. 442 patients 34 to 96 years of age (mean age 71 y, 51% women) who were noncompliant enrolled in the study. Patients were excluded if they received supervised treatment in nursing homes, were deaf or mute, had dementia or other psychological disorders, or spoke non-Cantonese dialects or other languages.
Intervention: Telephone intervention (n = 219) or no telephone intervention (control) (n = 223). Patients in the telephone-intervention group received a 10- to 15-minute telephone call from the pharmacist between clinic visits to reinforce compliance, clarify misconceptions, answer questions, explain the nature of side effects, and provide relevant advice on diet, exercise, and self monitoring.
Outcomes: All-cause mortality. Secondary outcomes were change in compliance, length of hospital stay, hospital admissions, and emergency room visits.
Patient follow-up: 100% (intention-to-treat analysis).

MAIN RESULTS

At enrollment, 236 patients became compliant and 206 were still noncompliant. At 2 years, the telephone-intervention group had lower all-cause mortality (Table) and shorter hospital stay (median 0 vs 3 d/y, P = 0.018) than did the control group. Fewer patients in the telephone-intervention group who were noncompliant remained noncompliant and more patients who were compliant remained compliant at 2 years compared with the control group (Table). Among compliant or noncompliant patients, groups did not differ for incidence of death. Groups did not differ for hospital admissions and emergency room visits.

CONCLUSION

In patients receiving polypharmacy, periodic telephone counseling by a pharmacist improved compliance and reduced mortality.

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*See Glossary.

†Information provided by author.

Telephone intervention vs no telephone intervention (control) in patients receiving polypharmacy at 2 years‡

Outcomes	Telephone	Control	RRR (95% CI)	NNT (CI)
All-cause mortality	11%	17%	41% (3.0 to 65)	15 (10 to 197)
Noncompliant patients who stayed noncompliant	6.9%	18%	62% (17 to 83)	9 (5 to 41)
				SRBI (CI)
Compliant patients who stayed compliant	81%	58%	40% (18 to 69)	5 (3 to 9)

‡Abbreviations defined in Glossary; RRR, RBI, NNT, and CI calculated from data in article.

COMMENTARY

It is well known that poor adherence (compliance) to drug therapy is associated with poor outcomes (1). The trial by Wu and colleagues offers intriguing insight into a seemingly simple intervention given by pharmacists that resulted in a 41% relative risk reduction in mortality at 2-year follow-up.

The main strength of the study was its randomized design. Allocation seems to be adequately concealed using sealed envelopes opened by a nurse. The nature of the intervention did not allow for blinding. Although outcome assessors were unblinded, the endpoint of mortality alleviates concerns over bias.

Wu and colleagues studied a broad range of high-risk patients (most with cardiovascular disease) receiving ≥ 5 different drugs. While the intervention seems to be replicable, it is unclear if the results are generalizable to healthcare settings outside Hong Kong.

Are these results "too good to be true"? Many pharmacist interventions have been shown to improve outcomes, although reductions in mortality are often not observed. In the study by Wu and colleagues, the CI for the relative risk reduction in all-cause mortality was wide (3 to 65), however the effect size is consistent with that of a recent systematic review by Simpson and colleagues (1) on adherence to drug therapy and mortality outcomes. In the review of 21 studies and 47 000 patients, good adherence was associated with an odds ratio of 0.56 (95% CI 0.43 to 0.74) for mortality. It is not known how much of the observed effect in the study by Wu and colleagues is attributed to improved adherence to drugs rather than to increased health awareness and improved continuity of care.

While it would be desirable to see this intervention studied in other healthcare settings, it is a promising intervention that should be strongly considered by all healthcare providers wherever they practice.

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Reference

1. **Simpson SH, Eurich DT, Majumdar SR, et al.** A meta-analysis of the association between adherence to drug therapy and mortality. BMJ. 2006;333:15.