Improving Adherence to Medication for Patients with Chronic Conditions

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Medication Adherence in Chronic Illness

• Advances in prevention & management of chronic disease thwarted by poor adherence
• Average adherence to long-term medications is 50%

“Drugs don’t work in patients who don’t take them.”

-- C. Everett Koop, former U.S. Surgeon General

Economic Cost of Non-Adherence

• Estimated total cost of non-adherence:
  USA: 77 - 300 billion USD
  Germany: 10 billion EUR
  (13% of health care costs)

• 33%-69% of medication related hospital admissions due to non-adherence

Good adherence is associated with reduced mortality risk (N=46847 of 21 studies)

Adherence to Medications

Simpson et al. BMJ 2006


Persistence for Different Drug Regimens

- On average, a rapid decline is seen after 60 days
- Persistence remains relatively constant after the initial 60-day period

Why Does Non-Adherence Occur?

Intentional

Unintentional
Common Reasons for Non-Adherence Among Older Adults

How to Improve Adherence?

Existing Guidelines
• Few published
• Low quality

Keys to Medication Adherence Interventions
• Assessment
  – Adherence
  • Missed doses
  • Trouble remembering
  • Intentional non-adherence
  – Barriers to adherence
  – Beliefs/perceptions

Educational Interventions
• Education is Important, but often insufficient on its own to change behavior

Motivation

Motivational Interviewing

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
Behavioral Interventions

- Actually modifying behavior, rather than simply teaching about medication/disease
- Often used with an educational component

Packaging Interventions

- Blister packs & pill organizers are some of the simplest, most effective interventions
  - \( d=0.593; k=52 \)

Feedback

Self-Monitoring

- Can include patients recording medication-taking and/or monitoring symptoms
- Emerging mobile health technologies simplify patients’ ability to monitor and see trends in symptoms
  - \( d=1.18 \) vs. \( d=0.30, p<.01 \)

Dose Modification

- Simplifying the dosing regimen
  - Once-daily dosing
  - Combination drugs
- Consider regimens with better forgiveness for missed doses
Medication Reconciliation
- Periodic checks on medications
- Compares medications being taken against list of medications prescribed
- Checks for
  - Duplicate Rx from multiple providers
  - Drug interaction risks
  - Drugs discontinued but not reported to prescriber

Stimulus Interventions
- Reminders
- Cues in the patient’s environment
- Associating medication-taking with existing habits & routines
- Effective, at least in the short-term
  - $d=1.06$ vs. $d=0.30$, $p<.01$
- Beeping pill bottles are not a long-term solution


PROBLEMS WITH ADHERENCE INTERVENTIONS

One Size Does Not Fit All
- Reasons for adherence problems will vary
- Different types of non-adherence need different approaches
  - Poor implementation vs. non-persistence, etc.
- Most medication adherence research is based on homogenous samples
  - Culture may influence medication-taking behavior
  - Health literacy
  - Health care system differences


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Intervention Effects Wane Over Time


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Interventions Targeting Health Care Providers May Be of Limited Benefit

- Overall: HCP interventions have small but significant effects
  - $d = 0.233$, $p < .001$
- Heart failure: Interventions targeting HCPs less effective
  - $d = -0.12$ vs. $0.49$, $p < .001$

Essential Recommendations

- Assess
  - Adherent or non-adherent?
  - Intentional, unintentional, or both?
  - Reasons for adherence problems – Do not assume
- Tailor approach to patients
- Do not rely on educational approaches
- Re-assess after the intervention
- Initiate health care system interventions

Questions?

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