Review: Exercise interventions reduce length and cost of hospital stay in older patients hospitalized for acute conditions

de Morton N, Keating J, Jeffs K. **Exercise for acutely hospitalised older medical patients.** Cochrane Database Syst Rev. 2007;(1):CD005955.

Clinical impact ratings: GIM/FP/GP ★★★★☆☆☆ Hospitalists ★★★★★★☆ Geriatrics ★★★★★★☆ Phys Med & Rehab ★★★★☆☆☆

QUESTION

In older patients hospitalized for acute medical conditions, are exercise interventions effective for improving functional status, adverse events, and hospital outcomes?

METHODS

Data sources: MEDLINE, EMBASE/Excerpta Medica, CINAHL, Current Contents, PEDro, Sports Discus (to February 2006), Cochrane Library (Issue 1, 2006), hand-searches of the Journal of the American Geriatrics Society, bibliographies of relevant studies, and experts in the field.

Study selection and assessment: Randomized controlled trials (RCTs) or controlled clinical trials (CCTs) in any language that compared exercise alone or as part of a multidisciplinary intervention with usual care or no treatment in patients ≥ 65 y of age (range of mean ages 77 to 83 y, 55% to 71% women) who had an acute exacerbation of a medical condition and were randomized within 3 days of hospitalization. Studies of patients admitted to rehabilitation hospitals and those with cerebrovascular accidents or nongeneral medical conditions (e.g., orthopedic conditions) were excluded. Quality assessment of individual studies was based on the 10-point PEDro scale. 9 studies (7 RCTs and 2 CCTs, $n = 4223$) met the selection criteria and had PEDro scores ranging from 4 to 8. Three trials evaluated exercise-only interventions, and 6 trials evaluated multidisciplinary interventions.

Outcomes: Function (including activities of daily living, mobility, and cognition), adverse events, and hospital outcomes (including length of stay, discharge destination, and total cost).

MAIN RESULTS

Meta-analyses showed that exercise-only and multidisciplinary interventions did not differ from usual care for any functional outcome or adverse event. More patients receiving multidisciplinary exercise interventions were discharged to their homes than were patients receiving usual care (Table). The multidisciplinary exercise intervention led to shorter hospital stay and lower total cost than usual care (Table).

CONCLUSIONS

Multidisciplinary interventions that include exercise reduce length and cost of hospital stay and increase discharge to home in acutely hospitalized older medical patients. The effect of exercise interventions on functional outcomes is unclear.

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Multidisciplinary exercise intervention vs usual hospital care in older patients hospitalized for acute medical conditions*

Outcomes	Number of trials (*n*)	Weighted event rates	RBI (95% CI)	NNT (CI)
Hospital discharge to home	4 (1675)	81% vs 75%	8.0% (3 to 14)‡	16 (11 to 43)
		Weighted mean difference (CI)		
Length of hospital stay (d)	6† (3478)	–1.1 (–1.9 to –0.2)‡		
Total hospital cost (US $)	5 (3241)	–279 (–492 to –65)‡		

*Abbreviations defined in Glossary; weighted event rates, RBI, NNT, and CI calculated from relative risk and control event rate in article using a random-effects model.
†5 randomized controlled trials and 1 controlled clinical trial.
‡Favors exercise intervention.

COMMENTARY

Functional decline is common in older adults who are hospitalized (1) and may be difficult to reverse even with effective management of the illness that led to hospitalization (2). Functional decline might be prevented by early inpatient rehabilitation (3), which has become a key component of care for selected patients (e.g., those who sustain a stroke or receive orthopedic surgery). The meta-analysis by de Morton and colleagues focused on the effectiveness of exercise interventions for older adults hospitalized for other reasons.

Interventions were heterogeneous with different forms of exercise evaluated alone or as components of various multidisciplinary programs (MDPs). This review suggests that exercise alone is of little benefit and must be offered within the context of MDPs to improve patient outcomes. Although MDPs that include exercise may be effective, the small number of studies and the heterogeneity of the interventions make it difficult to provide definitive recommendations. In a separate article, de Morton and colleagues suggested that patients who require assistance or supervision to ambulate at admission are most likely to benefit from inpatient rehabilitation (4).

For clinicians, the meta-analysis suggests that referral of older medical inpatients to rehabilitation programs soon after admission may improve outcomes. However, the current evidence base needs to be expanded. A trial excluded from this meta-analysis showed that inpatient geriatric evaluation and management reduced functional decline without increasing costs (5). Similar high-quality RCTs are needed to establish the cost-effectiveness of early multidisciplinary rehabilitation before this approach becomes routine.

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