

# Review: Delirium predicts 12-month mortality independent of dementia status

Fick DM, Agostini JV, Inouye SK. Delirium superimposed on dementia: a systematic review. *J Am Geriatr Soc.* 2002;50:1723-32.

## QUESTIONS

What is the outcome for patients with delirium superimposed on dementia? Is geriatric consultation better than usual care for reducing delirium in patients with delirium superimposed on dementia?

## DATA SOURCES

Studies were identified by searching MEDLINE (1966 to February 2002), conference proceedings, personal communications, and reviewing reference lists of published studies and books.

## STUDY SELECTION

Studies were selected if they included data on patients with delirium superimposed on dementia, had a validated operational definition or measure of dementia and delirium, reported actual data on patients with delirium and dementia, and reported primary data.

## DATA EXTRACTION

Data were extracted on population, sample size, patient age, dementia and delirium measure, study design, prevalence of delirium on dementia, and outcomes. Study quality

was assessed using a rating scale of 8 questions scored according to an answer of yes, partly yes, and no.

## MAIN RESULTS

14 studies met the inclusion criteria. 1 randomized controlled trial (126 patients with hip fracture) comparing a geriatric consultation intervention with usual care showed that patients in the consultation group had greater reduction in delirium than did those in the usual care group (Table). In a prospective observational study (361 patients) where more patients had delirium with dementia than delirium alone (74% vs 24%), 12-month mortality was higher in patients with delirium without dementia. Delirium predicted 12-month mortality independent of dementia status (unadjusted hazard ratio

[HR] 3.44, {[95% CI 2.05 to 5.75]}, and was associated with a 2-fold increase in mortality during the 12-month follow-up (adjusted HR 2.11, CI 1.18 to 3.77)}\*.

## CONCLUSIONS

Delirium is a predictor of 12-month mortality, independent of dementia status. A geriatric consultation intervention reduced delirium more than usual care in patients with delirium superimposed on dementia.

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\*McCusker J, Cole M, Abrahamowicz M, Primeau F, Belzile E. *Arch Intern Med* 2002; 162:457-463.

### Consultation vs usual care for delirium superimposed on dementia at 12 months (1 trial, 126 patients with hip fracture)†

Outcome	Consultation	Usual care	RRR (95% CI)	NNT (CI)
Delirium	32%	50%	35% (1.3 to 59)	6 (3 to 209)

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

## COMMENTARY

The systematic review by Fick and colleagues examined the prevalence and clinical consequences of delirium superimposed on dementia. A meta-analysis was not feasible because the articles that were retrieved were too heterogeneous in their design and setting. Prevalence rates of delirium ranged from 7% in nursing home patients, to 22% to 25% in community-dwelling patients with dementia, to 32% to 89% in hospitalized patients. Earlier studies showed that delirium is often unrecognized, especially in its "hypoactive" form. Francis and colleagues reported that *underlying dementia*, abnormal sodium levels, illness severity, fever or hypothermia, psychoactive drug use, and azotemia were individually and cumulatively associated with high-risk for delirium among general medicine inpatients. The presence of delirium was correlated with longer hospital stays, death, and institutionalization (1), and in 2 recent prospective studies, delirium was associated with an increased risk for dementia over 2 to 3 years (2, 3).

Fick and colleagues reviewed 2 intervention studies that showed that standardized protocols and recommendations could decrease the rate of new-onset delirium in hospitalized patients > 65 years of age. In the Elder Life Program study (4), patients at *moderate* risk for delirium benefited more than *high*-risk patients from interventions that addressed hearing, vision, ambulation, sleep, cognition, and hydration. The delirium risk scale included baseline cognitive impairment as a risk factor. Subgroup analysis in the second study reviewed by Fick and colleagues (5) found that geriatric consultation was most effective for hip fracture patients *without* underlying dementia. A recent Canadian study (6) found that 58% of elderly medical inpatients with delirium

had underlying dementia. At 8 weeks, almost half the delirious patients improved cognitively as seen by an increase on the Mini-Mental State Examination (> 2 points), but environmental, geriatric, and nursing interventions did not make a difference.

The review by Fick and colleagues highlights the paucity of well-designed studies for this common geriatric problem and outlines important areas for future clinical research.

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