

Outpatient Service Trialists. Therapy-based rehabilitation services for stroke patients at home. Cochrane Database of Systematic Reviews 2003 Issue 1 Art # CD002925.

Design: Meta-analysis of randomized clinical trials

PICOS:

- **Patient population:** Patients who had a clinical definition of stroke (focal neurological deficit caused by cerebrovascular disease), living in a community setting, and randomized within one year of onset of stroke
- **Interventions:** Therapy-based services provided by physiotherapy (PT), occupational therapy (OT), or multidisciplinary staff working with the primary purpose of improving task-oriented goals (walking, dressing, other ADL) and hence reduce disability
 - o The authors excluded trials which compare different therapy techniques or which looked at different settings for provision of services
- **Control intervention:** No routine intervention or “normal practice”
- **Outcomes:** Two primary outcomes were considered: (1) death or a poor outcome (deterioration, dependency, or institutional care) and (2) performance in personal care ADL at the end of follow-up
 - o Death or poor outcome was defined in four ways for four different analyses: (1) death, (2) death or institutional care, (3) death or dependency for ADL, and (4) death or deterioration as signified by a drop in ADL scores—generally on the Barthel index, but including Rankin, Rivermead ADL, or functional independence measure
- **Study types:** “unconfounded, truly randomized trials” of stroke patients resident in the community

Study selection:

- The Cochrane Stroke Group register and several electronic databases (MEDLINE, EMBASE, PsychINFO, etc) through November 2001; in addition, the authors hand searched 17 journals beginning as far back as 1947 and continuing through November 2001
- Two authors independently evaluated trials for eligibility and documented the quality of the articles
 - o Quality criteria were randomization method, allocation concealment, intention-to-treat analysis, and blinding of outcome assessment
 - o Sensitivity analyses were based upon these quality variables
- The review content was edited with no change to conclusions in 2009

Pertinent results:

- After identification of 27 trials for possible inclusion, 14 trials with 1617 patients were selected for outcome analysis

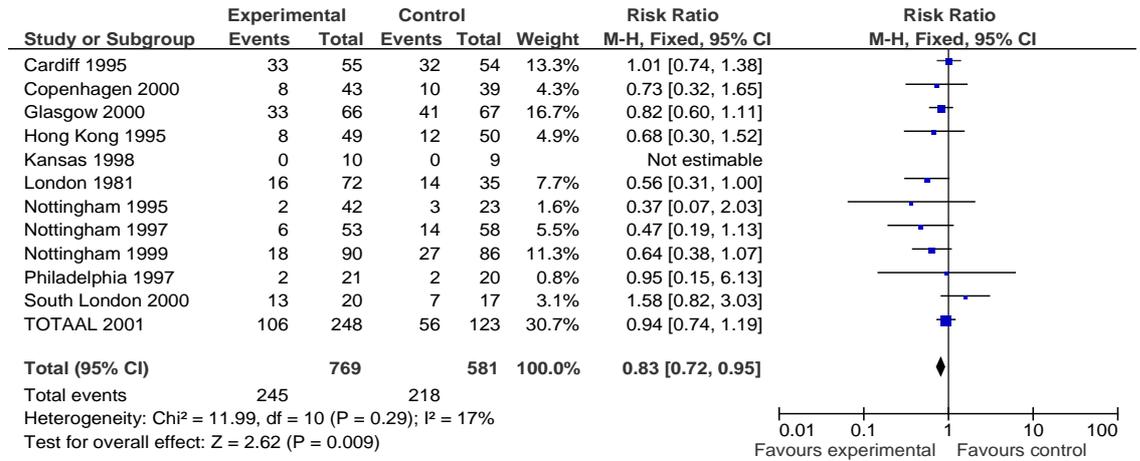
- All trials recruited patients within about a year of stroke (though one study recruited patients up to 15 months); 2 trials recruited patients who were not admitted to a hospital after stroke onset
- Of the 14 trials used for outcome data, 10 used a clearly defined allocation concealment, and 12 were clearly blinded for outcome assessment
- Four pooled odds ratios were calculated for occurrence of death/poor outcome; three of these were not statistically significant; for the fourth (death or deterioration of ADL), the odds ratio was 0.72 in favor of rehabilitation (95% confidence interval, 0.57 to 0.92)
- For the second primary outcome, personal ADL scores, the pooled ADL score was better for the rehabilitation group than for the control group; the difference was 0.14 standard deviations

Authors' conclusions:

- Therapy-based rehabilitation for patients living at home after stroke reduces the odds of a poor outcome (death or deterioration of ADL) and has benefits in a patient's ability to perform ADL
- Approximately 13 patients need to be treated to prevent one avoidable deterioration
- Because the Barthel Index has a ceiling effect (maximum score of 20), the relatively small effect of rehabilitation may be due to the fact that many of the patients, having been discharged from hospital to home, were already capable of doing many basic ADL, and the effect of rehabilitation would be constrained by the scoring system used to report the outcome

Comments:

- The authors are justified in speculating that an ADL scale with a ceiling score is likely to be insensitive to change when measured in a population which is defined in part by its having already achieved at least a high enough ADL to be discharged home from an inpatient facility
- The authors conclude that 13 patients need to be treated (NNT) to prevent one avoidable deterioration; however, calculations of NNT in meta-analyses are sensitive to variations in the event rates in the control group, and the NNT of 13 should be interpreted with caution
- The numbers of trials with adequate control of bias and consistent results favoring home rehabilitation justifies at least a "good" evidence statement in its favor
- The authors report an odds ratio of 0.72 in favor of the rehabilitation group in avoiding death or deterioration; however, because the outcome did occur fairly often, the odds ratio (creating an appearance of a 28% risk reduction) tends to inflate the actual risk ratio, which is closer to 0.83 (a 17% risk reduction), as calculated with the Cochrane RevMan software:



Assessment: High quality review which justifies a statement that there is good evidence that rehabilitation therapy may reduce deterioration of ADL independence in stroke patients living in the community