

Integrated care pathway based rehabilitation for acute stroke did not reduce length of hospital stay

Sulch D, Perez I, Melbourn A, Kalra L. *Randomized controlled trial of integrated (managed) care pathway for stroke rehabilitation. Stroke* 2000 Aug;31:1929-34.

QUESTION: Is integrated care pathway (ICP) based management more effective than conventional multidisciplinary care in reducing length of hospital stay in patients with acute stroke who require specialist rehabilitation?

Design

Randomised (allocation concealed), unblinded, controlled trial with follow up to 26 weeks.

Setting

A stroke rehabilitation unit in a hospital in London, UK.

Patients

152 patients (mean age 75 y, 51% men) who had acute stroke within the previous 2 weeks; and had persistent motor, sensory, vision, speech, perceptual, or cognitive impairment that limited personal activities of daily living (ADL) and required inpatient rehabilitation. Exclusion criterion was severe premorbid disability. Follow up was complete, although some measures had incomplete data ($\leq 18\%$ of records).

Intervention

76 patients were allocated to rehabilitation managed by an ICP (organised, goal defined, and time managed care plan). The ICP was developed by a multidisciplinary stroke team on the basis of an extensive review of published and unpublished literature. Therapeutic activities, short term goals, and predicted time to achieve the goals were defined in advance. A senior nurse was appointed to implement ICP management. 76 patients were allocated to conventional, multidisciplinary care. They were assessed comprehensively and received individualised rehabilitation programmes designed by the multidisciplinary team. Therapeutic activities, short term goals, and time to achieve the goals were discussed at weekly meetings and based on patient progress.

Main outcome measures

Main outcome was mean length of hospital stay. Secondary outcomes included mortality, rate of institutionalisation, ADL (Barthel Activities of Daily Living Index), disability (Rankin Score), anxiety and depression (Hospital Anxiety and Depression Scale), duration of physiotherapy and occupational therapy, and quality of life (Euroqol Quality of Life Score).

Main results

Analysis was by intention to treat. At 26 weeks, the ICP and conventional care groups did not differ for mean length of hospital stay (50 v 45 d, $\{p=0.3\}^*$), mortality (13% v 8%, $\{p=0.3\}^*$), rate of institutionalisation (13% v 21%, $\{p=0.2\}^*$), ADL, disability, anxiety and depression, or mean duration of physiotherapy (42.8 v 39.4 h, $\{p=0.2\}^*$) and occupational therapy (8.5 v 8.0 h,

$\{p=0.7\}^*$). Patients who received ICP care had lower quality of life scores than those who received conventional care (median score 63 v 72, $p<0.005$).

Conclusions

Integrated care pathway (ICP) based management of patients with acute stroke did not reduce length of hospital stay. ICP management was as effective as conventional multidisciplinary care in terms of mortality, rate of institutionalisation, activities of daily living, disability, anxiety and depression, and duration of physiotherapy and occupational therapy. Patients who received ICP based care had lower quality of life scores.

*p Value calculated from data in article or provided by author.

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CORMENTARY

The study by Sulch *et al* is one of the first trials to examine the effectiveness of an ICP on outcomes of stroke in a multidisciplinary environment. The authors conclude that ICP care made no difference to clinical outcome or length of stay, although several factors may limit the generalisability of the findings. Even in patients with major functional and cognitive impairments, the average length of stay, nearly 7 weeks, is atypical by North American standards. The differences in rates of institutionalisation and death were not statistically significant, but the sample size was too small to exclude clinically important differences. Given that no other differences in outcome were found in the 2 groups, the finding of increased quality of life in patients receiving conventional care is a secondary one. The authors suggest, however, that the less structured approach of conventional care may have allowed patients to dictate the pace of their rehabilitation more than the ICP approach, and this may have positively influenced their perceptions of wellbeing.

Each intervention was delivered in separate bed areas by separate teams. Each team may have had unique features, such as educational levels and staffing patterns, that influenced clinical outcomes. The educational level and leadership style of the senior nurse who implemented the ICP may have influenced the outcomes. The senior nurse was hired specifically to coordinate the ICP, incurring additional costs to achieve similar or less favourable outcomes. The multidisciplinary team developed the ICP. Unless the ICP staff received further education about rehabilitation, they may simply have delivered similar care to that of the conventional multidisciplinary team.

Several studies have shown that a collaborative, multidisciplinary team with clinical expertise can achieve improved outcomes in the absence of clinical pathways.^{1 2} This study shows no additional benefit of using an ICP to guide multidisciplinary stroke care when compared with conventional multidisciplinary stroke care. The possibility that ICPs may work in other settings cannot be excluded.

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- 1 Indredavik B, Bakke F, Slordahl SA, *et al*. Stroke unit treatment. 10-year follow-up. *Stroke* 1999;30:1524-7.
- 2 Palmer RM, Counsell S, Landefeld CS. Clinical intervention trials: the ACE unit. *Clin Geriatr Med* 1998;14:831-49.



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