

A multidisciplinary community based rehabilitation programme improved social functioning in severe traumatic brain injury

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For correspondence:
Dr J Powell,
Department of
Psychology, Goldsmiths
College, London, UK.
j.powell@gold.ac.uk

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Community outreach programme v information only in traumatic brain injury at a mean of 24.8 months follow up

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QUESTION: In patients with severe traumatic brain injury (TBI), does a multidisciplinary community based outreach rehabilitation programme improve activities of daily living, social participation, and psychological wellbeing?

Design

Randomised (allocation concealed*), blinded (outcome assessors)*, controlled trial with a mean follow up of 24.8 months.

Setting

An urban setting of east London, UK.

Patients

110 patients, 16–65 years of age, who sustained severe TBI 3 months to 20 years previously with no other neurological conditions. 94 patients (85%, mean age 34 y, 76% men) participated in the end of study assessment.

Intervention

54 patients were allocated to a multidisciplinary community based outreach rehabilitation programme and 56 were allocated to an information only group. Rehabilitation was highly individualised in intensity, duration, and form of treatment with patients seen in their homes or other community settings for 2–6 hours per week for an average of 27 weeks.

Main outcome measures

Scores on the Barthel Index (BI), the Brain Injury Community Rehabilitation Outcome-39 (BICRO-39), the Functional Independence/Assessment Measure (FIM+FAM), and the Hospital Anxiety and Depression Scale (HADS). An individually determined change score, the maximum gain index (MGI), was also calculated by identifying the subscale on which each patient showed the greatest improvement from intake to follow up.

Main results

Analysis was by intention to treat. On the BI, 35% of patients in the outreach (treatment) group showed improvement compared with 20% of patients in the information group (Mann Whitney U test on ranked changed scores, mean rank 53.2 v 41.6, $p < 0.05$). Median change scores on the BICRO-39 were greater for those in the outreach group than for those in the information group for the total score, the MGI, and the self organisation and psychological wellbeing subscores (table). The FIM+FAM and HADS scores showed similar improvements in both groups. However, the MGI for the FIM+FAM was greater for those in the outreach group than for those in the information group (mean rank 53.2 v 40.4, $p < 0.03$). Time since brain injury was not related to the magnitude of gain.

Conclusion

In severe traumatic brain injury, a multidisciplinary community based outreach rehabilitation programme improved social functioning.

*See glossary.

BICRO-39 Scores	Median change scores (range)		
	Outreach	Information	P value†
Total Score	2.5 (–1.7 to 6.2)	0.9 (–4.1 to 6.8)	<0.05
Maximum gain index	1.6 (0.2 to 2.6)	1.0 (0.0 to 3.3)	<0.03
Self organisation	0.4 (–2.8 to 2.2)	0.1 (–1.5 to 3.1)	<0.03
Psychological wellbeing	0.6 (–2.0 to 2.6)	0.2 (–1.8 to 1.3)	<0.05

BICRO-39=Brain Injury Community Rehabilitation Outcome-39.
†Probability levels for group comparisons (Mann-Whitney U tests).

COMMENTARY

In 1998, Chesnut *et al* published an evidence based analysis of TBI rehabilitation.¹ They were able to draw few positive conclusions about the efficacy of rehabilitation due to the dearth of available evidence. This important study by Powell *et al* provides a welcome counterpoint as it supports the usefulness of ongoing community based rehabilitation for people with TBI. Particularly noteworthy is the design, one of the few randomised controlled trials related to community based rehabilitation;² the inexpensive intervention; the similarity of the intervention to other publicly funded community based rehabilitation programmes; and that change occurred many years after TBI.

There are several limitations in the study. Firstly, the 2 primary outcome measures used had substantial ceiling and floor effects (BI and 2 subscales of the BICRO-39). The use of other available measures of community integration might have avoided this problem.³ Secondly, the outreach group did not make substantive gains in terms of returning to paid employment, school, and/or childcare nor in terms of improving non-family social contact, 2 key indicators of successful community integration. It is possible, as the authors suggest, that obstacles beyond the control of therapist and/or patient are the reason for this. However, altering some of the parameters of the therapy may have a positive effect. This study contributes to the growing body of evidence suggesting that multifaceted rehabilitation approaches provide the best outcomes,⁴ but also illustrates that more needs to be done.

The take home message is this: functionally based rehabilitation shows promise for improving day to day life for people with severe TBI even many years after injury. Although further evidence is needed to substantiate these findings and address questions about the content, intensity, duration, and timing of rehabilitation, time since injury should not preclude referral to community based services.

Deirdre R Dawson, PhD, OT(C)

*Kunin-Lunenfeld Applied Research Unit & University of Toronto
Toronto, Ontario, Canada*

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