Cost-effectiveness of nidotherapy for comorbid personality disorder and severe mental illness: randomized controlled trial

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SUMMARY. **Aims** – Nidotherapy is the systematic modification of the environment to create a better fit for people. This is the first randomized controlled trial of its efficacy in an assertive community team. **Methods** – Patients in an assertive outreach team with continued management problems together with comorbid personality disturbance and severe mental illness were randomized to nidotherapy enhanced assertive treatment (up to 12 sessions) or to continued assertive outreach care. Use of psychiatric beds over one years (primary outcome) and change from base-line in other health service resources, psychiatric symptoms, social functioning and engagement with services were measured at 6 and 12 months (secondary outcomes). **Results** – 52 patients were recruited over 13 months, with 49 and 37 assessed at 6 and 12 months. Patients referred to nidotherapy had a 63% reduction in hospital bed use after one year compared with control assertive care (P=0.13) and showed non-significant improvement in psychiatric symptoms, social functioning and engagement than the control group. The mean cost savings for each patient allocated to nidotherapy
was £4,112 per year, mainly as a consequence of reduced psychiatric bed use. **Conclusion** – Nidotherapy may be a cost-effective option in the management of comorbid serious mental illness and personality disorder, but larger confirmatory trials are necessary.

Declaration of Interest: None.
KEY WORDS: nidotherapy, assertive outreach, randomised trial, cost-effectiveness.

Participants

The participants were all patients with severe mental illness recruited from the case-load of an assertive outreach and rehabilitation team (Paddington (subsequently Community) Outreach and Rehabilitation Team) in Central London.

Inclusion and exclusion criteria

Nidotherapy is normally used only when patients remain significantly unwell in spite of receiving good evidence-based treatment (Tyrer & Kramo, 2007). We therefore selected patients who
a) had a severe mental illness (using the criteria of Schinnar *et al.*, 1990);
b) had a comorbid personality disorder or personality difficulty
using the ICD-10 version of the Personality Assessment Schedule (PAS-I) (Tyrer, 2000; Ranger *et al.*, 2004);
c) continued to present serious management problems; and
d) gave written informed consent for interview and
examination of notes. Patients were also assessed for Type R (treatment resisting) and Type S (treatmentseeking) personalities (Tyrer *et al.*, 2003b), as nidotherapy is considered to be most suitable for the
Type R group (Tyrer, 2008). Ethical approval was given by St Mary's Hospital Ethical Committee.

Procedure

Following baseline assessment, those who satisfied the eligibility criteria and who were part of the caseload of the assertive outreach team between August 2003 and September 2004 were randomly allocated by an independent statistician using a random numbers design with no stratification of groups, to either nidotherapy or control groups. Patients were assessed at baseline and at 6 and 12 months by MR and KI who remained blind of trial allocation.

Maintenance of blinding was aided because the main nidotherapists also had responsibilities as support workers in the team, thus knowledge of their involvement did not disclose the nature of their intervention.

Assessments

Assessments were made of a) clinical psychopathology using the Brief Psychiatric Rating Scale (Overall & Gorman, 1964),
b) social function using key-worker and patient self-rated versions of the Social Functioning Questionnaire (Tyrer *et al.*, 2005),

c) in-patient bed usage, and
d) all service costs, using the Secure Facilities Service Use Schedule (SFSUS) (Barrett & Byford, 2007) as this covers every possible service contact for those with severe mental illness in secure facilities and in the community.

Primary and secondary outcomes

The duration of psychiatric admissions after one year was chosen as the primary outcome as the positive value of nidotherapy is jedged by its ability to keep patients in a harmonious relationship with their home environment. All other outcomes were secondary and tested at 6 months and one year.

Interventions

Active group: Those allocated to nidotherapy enhanced assertive treatment received up to 15 sessions of nidotherapy from two nidotherapists following a standard format (Tyrer & Bajaj, 2005). This involved a combination of environmental analysis, articulation of the patient's needs at a physical, social and personal environmental level, and setting of targets. Possible changes were discussed with the clinical team and a consensus negotiated to obtain an agreed management plan. In some instances no major change in the plan was considered necessary, but minor adjustments were made to suit patient preferences.

Economic evaluation

Costs were assessed from the perspective of service providers, including the health, social, voluntary and criminal justice services. The SFSUS was used to record service use during the 6 months immediately before randomization and the twelve months after randomization. Detailed records of all admissions to hospital (including days on leave) and of all clinical contacts were also recorded up to 18 months after randomisation bur no clinical data were recorded beyond 12 months. All costs were calculated for the financial year 2004-05. The cost of the nidotherapy was based on the time spent by the therapist interviewing the patient and reporting to the clinical team responsible for their care plus relevant overheads.

In order to calculate total costs, unit costs were applied to each service. Hospital services were costed using NHS Reference Costs (Department of Health, 2005), with published unit costs applied to community health and social services (Curtis & Netten, 2005; Finn *et al.*, 2000), medication (British Medical Association, 2004) and criminal justice services (HM Prison Service, 2005); Legal Services Commission, 2003).

Primary outcome

47 patients had data for all time points up to 12 and 18 months. There was a 63% reduction in bed usage in the nidotherapy group compared with the control group at one year (Figure 2). However, the variance in the data was considerable, with 15 (32%) of patients having no admission up to 12 months and 32 (68%) with no admission between 12 and 18 months. There was no difference between the treatment groups after 18 months in number of admissions (P=0.91) or duration of bed use (P=0.258).

Secondary outcomes

Clinical symptoms, social functioning and engagement all showed somewhat greater improvement in the nidotherapy enhanced (Active) group but this was small and not significant, supporting the view that nidotherapy had no adverse effects on symptoms and functioning and therefore showed non-inferiority compared with the control group (Table I).

Table I – *Results of the secondary outcomes of clinical symptomatology (BPRS), social functioning (key-worker version (SFQ-KW) and engagement with services (EAS) in nidotherapy and control groups*

Measure Baseline (SD) 6 m 12 m significance
BPRS
Nidotherapy 34.6 (10.3) n=26 27.6 (9.3) n=25 24.8 (8.2) n=19 P=0.14
Control 36.4 (14.6) n=25 32.3 (9.0) n=24 29.2 (11.1) n=18
SFQ-KW
Nidotherapy 11.2 (5.1) n=25 11.1 (4.4) n=26 11.5 (4.7) n=20 P=0.19
Control 12.2 (5.7) n=25 13.2 (4.8) n=24 13.2 (4.3) n=17
EAS
Nidotherapy 10.3 (3.4) n=26 10.8 (3.1) n=26 11.1 (2.3) n=20 P=0.20
Control 8.7 (3.8) n=24 8.8 (3.6) n=24 9.4 (3.1) n=17
The patient version of the SFQ is not shown; this showed similar findings to the SFQ-KW version but had smaller numbers.

Table II – *Service use over 12 month follow-up by randomized group*

	Active (n=26)	**Control (n=22)**	**Savings with nidotherapy**
Mean total cost	**£**23796	£ 27908	£4112