A brief cognitive behavioural preimplantation and rehabilitation programme for patients receiving an implantable cardioverter-defibrillator improves physical health and reduces psychological morbidity and unplanned readmissions

Lewin R J, Coulton S, Frizelle D J, Kaye G, Cox H

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The aim was to determine the clinical and economic impact of a brief cognitive-behavioural rehabilitation programme for adult patients undergoing implantation of a cardiac defibrillator. The authors concluded that the programme was a cost-effective alternative to usual care, because it improved health-related quality of life and psychological endpoints, while reducing unplanned admissions and total costs. The study was well conducted and was satisfactorily presented. The authors’ conclusions appear to be valid.

Type of economic evaluation
Cost-utility analysis

Study objective
The aim was to determine the clinical and economic impact of a brief cognitive-behavioural rehabilitation programme for adult patients undergoing implantation of a cardiac defibrillator (ICD).

Interventions
The brief home-based cognitive-behavioural programme (the ICD plan) was delivered by a trained health care professional and included two booklets for patients, a booklet for relatives, a goal-setting diary, and a relaxation tape or CD. The first contact was followed by three brief telephone contacts with a nurse after implantation. This programme was compared with the usual care plus advice from an experienced health care professional.

Location/setting
UK/secondary care.

Methods
Analytical approach:
This economic analysis was based on data from a single study with a six-month time horizon. The authors stated that the perspective of the National Health Service (NHS) was adopted.

Effectiveness data:
The clinical data came from a prospective, multi-centre, intention-to-treat, cluster-randomised controlled trial (RCT) that was performed in eight ICD centres in the UK. A sample of 192 consecutive patients was enrolled, with 71 in the intervention group and 121 in the control group. The two groups were similar at baseline in terms of patients' clinical and demographic characteristics. Power calculations were performed and the inclusion and exclusion criteria were reported. The length of follow-up was six months and the primary endpoint was the change in anxiety and depression, which was estimated using the Hospital Anxiety and Depression Scale (HADS).

Monetary benefit and utility valuations:
The utility valuations were derived from the RCT using the Short Form Health Survey (SF-12) questionnaire.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure. Other model outputs such as changes in anxiety and depression or functional status were also reported.
Cost data:
The economic analysis included the following items: the ICD plan (booklets, CD, and nurses’ time for training and calls), visits to primary care professionals (general practitioners, practice nurse, and other professionals), out-patient visits and contacts (consultants, specialist nurses, and other professionals), electrocardiogram (ECG), and in-patient stay (routine admissions and emergency admissions). The unit costs and resource quantities were reported and resource use was based on data from the RCT. The costs were obtained using national sources. They were in UK pounds sterling (£) and referred to 2002 to 2003 prices.

Analysis of uncertainty:
Bootstrapping was used to generate confidence intervals (CIs) around the costs and QALYs and cost-effectiveness acceptability curves were generated.

Results
The six-month per patient health care costs were £486 in the intervention group and £528 in the control group. The additional intervention cost per patient was £12.68. This was offset by the reduced health care costs, which were mainly due to a reduction in hospitalisations with the intervention.

QALYs improved by 0.0094, psychological outcomes improved, and functional outcomes improved significantly in the intervention group compared with the control group.

Thus, under base-case conditions, the ICD plan was a dominant strategy as it was simultaneously less expensive and more effective. The dominance of the intervention was confirmed in 66.6% of samples in the bootstrapping analysis.

Authors’ conclusions
The authors concluded that the ICD plan was a cost-effective alternative to usual care because it improved the health-related quality of life and psychological endpoints, while reducing unplanned admissions and total costs. They stated that future studies should compare the intervention with other ways of delivering the same help.

CRD commentary
Interventions:
The selection of the comparator was appropriate because it reflected the current pattern of care in the authors’ setting. The two strategies were clearly described.

Effectiveness/benefits:
The use of an RCT to derive the clinical data was appropriate given the strengths of its design: randomisation, intention-to-treat principle, multi-centre setting, power calculations, and baseline comparability of groups. Statistical analyses were undertaken to control for the potential impact of baseline factors and medical centre on the clinical outcomes. The endpoints appear to have been appropriate for capturing the impact of the interventions on patients’ health. QALYs were appropriate as a benefit measure and they will permit comparisons to be made with other economic evaluations for this and for other diseases.

Costs:
The categories of costs and their sources were consistent with the perspective of the third-party payer, which in the UK is the NHS, as stated by the authors. The cost analysis was presented in detail. The unit costs, resource quantities, and price year were reported. The use of statistical tests was described. In general, an appropriate methodology appears to have been used.

Analysis and results:
The costs and benefits were appropriately combined using an incremental approach. The uncertainty was satisfactorily addressed using a comprehensive approach. The findings were clearly presented. The use of a longer time horizon would have been helpful for assessing the long-term impact of the interventions.

Concluding remarks:
The study was well conducted and was satisfactorily presented. The authors’ conclusions appear to be valid.
Funding
Funded by a grant from Medtronic UK.

Bibliographic details

PubMedID
18070951

DOI
10.1136/hrt.2007.129890

Original Paper URL
http://heart.bmj.com/cgi/reprint/95/1/63

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Anxiety Disorders /economics /prevention & control /rehabilitation; Arrhythmias, Cardiac /economics /psychology /rehabilitation; Cluster Analysis; Cognitive Therapy /economics /methods; Defibrillators, Implantable /economics; Depressive Disorder /economics /prevention & control /rehabilitation; Female; Health Care Costs; Health Status; Humans; Male; Middle Aged; Prospective Studies; Quality of Life; Young Adult

AccessionNumber
22009100637

Date bibliographic record published
09/09/2009

Date abstract record published
07/10/2009