Home inotropic therapy in advanced heart failure: cost analysis and clinical outcomes

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.

Health technology
Home inotropic therapy in patients with advanced heart failure.

Type of intervention
Secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Patients were aged 61 (+)

Setting
The practice setting was in the community (subjects' homes). The economic analysis was carried out in New Orleans, USA.

Dates to which data relate
Effectiveness and resource data was collected between 1994-1996. 1996 prices were used.

Source of effectiveness data
The estimates for final outcomes were derived from a single study.

Link between effectiveness and cost data
Costings were estimated and therefore not carried out directly on the study sample.

Study sample
The study comprised 24 patients (13 men, 11 women). No power calculations were stated.

Study design
Retrospective cohort (observational) study. At analysis, 33% of patients were receiving HIIT. Loss to follow up was: death (33%), transfer to another facility (17%), improvement in symptom status to the point where HIIT was not necessary (13%) and patient's own choice (4%).

Analysis of effectiveness
The basis of the analysis of the clinical study (intention to treat or treatment completers) was not stated. The primary health outcomes were the number of hospitalisations, the length of hospital stay and New York Heart Association (NYHA) functional class.

**Effectiveness results**
Compared to the control period, the study period (3.9 +/-2.7 months) was associated with a reduction in the number of hospital admissions from 2.7 (+/-2.6) to 1.3 (+/-1.3), (p=0.056), and length of hospital stay from 20.9 (+/-12.7) to 5.5 (+/-5.4) days, (p=0.0004). NYHA functional class also improved from 4.0 (+/-0.0) to 2.7 (+/-0.9), (p<0.0001), in the study period.

**Clinical conclusions**
Home IV inotropic therapy reduced hospital admissions, and length of stay and improved functional class in patients with advanced heart failure.

**Measure of benefits used in the economic analysis**
No summary benefit measure was derived from the effectiveness results. As such the benefits are assumed to be equal to the effectiveness outcomes. (Note: the authors defined the control period as the time interval immediately preceding the institution of HIIT and equal in length to the study period which is defined as the interval during which the subjects receive HIIT.) A home health nurse interviewed and educated subjects about the proposed therapy.

**Direct costs**
Direct costs included in-patient, out-patient (laboratory tests, clinic visits, etc.), and home health care costs. No discounting was stated (as the study ran for less than 1 year). Quantities and costs were not analysed separately.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was performed.

**Estimated benefits used in the economic analysis**
Compared to the control period, the study period (3.9 +/-2.7 months) was associated with a reduction in the number of hospital admissions from 2.7 (+/-2.6) to 1.3 (+/-1.3), (p=0.056), and length of hospital stay from 20.9 (+/-12.7) to 5.5 (+/-5.4) days, (p=0.0004). New York Heart Association (NYHA) functional class also improved from 4.0 (+/-0.0) to 2.7 (+/-0.9), (p<0.0001), in the study period. Eight subjects (33%) died after 2.8 (+/-1.7) months of HIIT.

**Cost results**
Total intervention costs were not calculated for the project as a whole.

**Synthesis of costs and benefits**
A 16% reduction in costs for the study period compared with the control period was found, saving $5,700 per client ($1,465 per client per month).

**Authors' conclusions**
HIIT reduced hospital admissions, length of stay, and cost of care whilst improving functional class in patients with
advanced heart failure.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparators was clear.

**Validity of estimate of measure of benefit**
No summary benefit measure typically associated with cost-effectiveness analyses (Quality-adjusted Life Years for example), was used. As such the study may more accurately be described as a cost-consequences study.

**Validity of estimate of costs**
A wide analysis of cost estimates were used with reference to a price year, but little other information was provided (for example, no total intervention cost for the group as a whole was presented nor the individual totals for hospital, home health, or out-patient costs).

**Other issues**
Detailed client information was provided. Effectiveness and resource data were collected over approximately the same period, but not from the same source. No sensitivity analysis was employed to test the authors' assumptions. Overall, the authors' conclusions appear to be justified although gaps in the clinical and economic analyses cast some doubt upon the findings.

**Implications of the study**
More research is required in this area, in particular to provide a summary benefit measure which can be compared in economic evaluations.

**Source of funding**
None stated.

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