Home parenteral nutrition: a systematic review
Richards D M, Deeks J J, Sheldon T A, Shaffer J L

Authors' objectives
To present evidence on the effectiveness and cost-effectiveness of home parenteral nutrition.

Searching
Eleven separate databases were searched from 1968 onwards, including MEDLINE, EMBASE, CINAHL, PsycLIT and others (details of keywords are given in the report). 10 journals were handsearched for 1980-1995, conference proceedings, personal literature files of Professor Sir Miles Irving were searched and expert centres contacted. Searches were not restricted to articles published in English.

Study selection
Study designs of evaluations included in the review
Prospective and retrospective longitudinal studies, case series, and interview studies, randomised controlled trials (RCTs), non-randomised controlled trials, cost analyses, cost-utility analyses.

Specific interventions included in the review
Home parenteral nutrition (HPN) for intestinal failure, i.e. intravenous infusion of liquid nutrients directly into a central vein.

Participants included in the review
Patients (both adults and children) with complete or partial intestinal failure due to Crohn's disease and other conditions involving destruction or loss of the absorptive surface of the intestine, and patients with chronic intestinal obstruction due to malignant disease or motility disorders.

Outcomes assessed in the review
Complications; quality of life; survival time; duration of use of HPN; reason for stopping HPN.

How were decisions on the relevance of primary studies made?
One researcher checked articles for eligibility for each research question and a second checked random samples both of articles selected for inclusion and articles rejected. Any uncertainty was discussed with a third researcher.

Assessment of study quality
Eleven questions were considered in the assessment of validity, ranging from methodological technique to assumptions tested in sensitivity analyses. One researcher checked articles for eligibility for each research question and a second checked random samples both of articles selected for inclusion and articles rejected. Any uncertainty was discussed with a third researcher.

Data extraction
The data were extracted by one researcher and a sample checked, as above.

Methods of synthesis
How were the studies combined?
A narrative synthesis was mainly used, with meta-analyses of data on complications.

How were differences between studies investigated?
Differences were discussed in terms of differing patient groups and underlying conditions.
Results of the review
A total of 65 studies were included in the review. 56 were considered relevant to the experience of patients on HPN (n = 21,401). In addition, there was one study on organisation, 6 comparative studies, 2 cost-utility analyses and 5 cost analyses.

Quality of life is reasonable for patients with benign disease and highest for young people on HPN. Mortality rates are generally low for patients with benign disease (e.g. 5% of Crohn's HPN patients die each year). Patients with malignant disease or AIDS almost always die from underlying disease within a year of starting HPN and no studies were found examining quality of life in patients with malignant disease.

Complications of HPN are usually related to the central venous catheter; morbidity is low for the majority of patients, although a minority suffer recurrent problems. There are few reports of patients dying from complications of the technology.

Little reliable information on effectiveness was available from comparative studies.

Cost information
The economic appraisals provide consistent evidence that HPN for benign disease is cheaper than in-patient treatment and that the cost is reasonable, particularly in view of the fact that many patients are young and the treatment is lifesaving. Costs to the NHS are £45,000 for the first year and £36,000 for subsequent years. There were no studies assessing the cost-effectiveness or cost-utility of HPN for patients with malignant disease or AIDS.

Authors' conclusions
The use of home parenteral nutrition (HPN) for benign intestinal failure is supported by research evidence, but there are large gaps in the evidence, particularly relating to the use of HPN in malignant disease and AIDS.

CRD commentary
This was a rigorous and wide-ranging review.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.