A socio-economic comparison of hemodialysis and peritoneal dialysis in Greece
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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
The study compared haemodialysis (HD) and peritoneal dialysis (PD) for patients suffering from end-stage renal disease (ESRD).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients undergoing HD or PD in hospital. No further exclusion or inclusion criteria were reported.

Setting
The study setting was tertiary care. The economic study was carried out in Greece.

Dates to which data relate
The dates to which the effectiveness and resource use data related were not reported. The price year was not reported.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
The sample size does not appear to have been determined in the planning phase of the study. In addition, no retrospective power calculations were reported. A total of 78 patients attending HD or PD at a dialysis unit were selected at random and included in the study. Of these, 54 received HD and 24 received PD. The mean age in the HD group was 60.7 (+/- 16.9) years, with 29 (53.7%) patients in this group being male. The mean age in the PD group was 59.2 (+/- 15.3) years, with 10 (41.7%) patients in this group being male.

Study design
The study was a prospective cohort study that was undertaken in the dialysis unit of the Regional University Hospital of
Heraklion in Crete, Greece. Each patient was administered a questionnaire, via interview, in an attempt to assess their health-related quality of life. The response rate to the questionnaire was 100%, although some objected to answering certain questions of a particularly personal and sensitive nature.

Analysis of effectiveness
All of the patients included in the study were accounted for in the analysis. However, it was unclear how the authors dealt with missing data (i.e., questions which remained unanswered in the questionnaire). The primary outcome used was health-related quality of life, which was measured using the Kidney Disease Quality of Life Short Form (KDQOL-SF) Health Survey. The KDQOL-SF instrument includes, aside from the 36 items making up the core component of the survey, an additional 44 items making up the second discrete part. These items focus on particular health-related concerns of individuals with kidney disease and on dialysis. To check the robustness of the survey, a further 39 people, considered to be in good health, were recruited to answer the general (SF-36) part of the survey.

The authors reported the demographic and clinical data of patients in both treatment groups. However, they did not perform any statistical analyses to determine if the groups differed significantly from each other in a particular baseline characteristic. The authors compared ten pairs of patients from the sample which were demographically and clinically similar, the only difference between them being the treatment modality used.

Effectiveness results
The average quality of life score (+/- standard deviation) per generic health outcome was:

for physical functioning, 0.439 (+/- 0.386) for HD, 0.441 (+/- 0.355) for PD, and 0.827 (+/- 0.245) for general public groups;

for role-physical, 0.090 (+/- 0.273) for HD, 0.198 (+/- 0.338) for PD, and 0.795 (+/- 0.331) for general public groups;

for bodily pain, 0.559 (+/- 0.296) for HD, 0.532 (+/- 0.309) for PD, and 0.777 (+/- 0.198) for general public groups;

for general health, 0.290 (+/- 0.207) for HD, 0.321 (+/- 0.225) for PD, and 0.687 (+/- 0.254) for general public groups;

for vitality, 0.468 (+/- 0.257) for HD, 0.448 (+/- 0.303) for PD, and 0.607 (+/- 0.305) for general public groups;

for social functioning, 0.540 (+/- 0.280) for HD, 0.521 (+/- 0.323) for PD, and 0.863 (+/- 0.229) for general public groups;

for role-emotional, 0.528 (+/- 0.495) for HD, 0.431 (+/- 0.496) for PD, and 0.807 (+/- 0.317) for general public groups; and

for mental health, 0.508 (+/- 0.239) for HD, 0.508 (+/- 0.278) for PD, and 0.727 (+/- 0.206) for general public groups.

The mean quality of life score from the generic component (SF-36) were as follows.

The average quality of life score (+/- standard deviation) per disease targeted health concept was:

for symptoms or problems, 0.650 (+/- 0.179) for HD and 0.653 (+/- 0.175) for PD;

for effects of kidney disease, 0.490 (+/- 0.150) for HD and 0.506 (+/- 0.175) for PD;

for burden of kidney disease, 0.362 (+/- 0.220) for HD and 0.386 (+/- 0.262) for PD;

for work status, 0.130 (+/- 0.294) for HD and 0.146 (+/- 0.345) for PD;

for cognitive function, 0.707 (+/- 0.183) for HD and 0.693 (+/- 0.236) for PD;

for quality of social interaction, 0.647 (+/- 0.229) for HD and 0.648 (+/- 0.230) for PD.
for sexual function, 0.426 (+/- 0.347) for HD and 0.488 (+/- 0.424) for PD;
for sleep, 0.470 (+/- 0.188) for HD and 0.540 (+/- 0.234) for PD;
for social support, 0.755 (+/- 0.279) for HD and 0.873 (+/- 0.188) for PD;
for patient satisfaction, 0.708 (+/- 0.151) for HD and 0.764 (+/- 0.134) for PD.

The mean quality of life score from the whole measurement instrument (KDQOL-SF) was 0.492 for the HD group and 0.524 for the PD group.

**Clinical conclusions**
The authors concluded that the self-reported quality of life was, on average, 3.8% for the PD patients and 6.5% for HD patients when using the generic part of the questionnaire (SF-36) and after incorporating a disease-specific component (KDQOL-SF).

**Measure of benefits used in the economic analysis**
The authors did not derive a measure of health benefit. The analysis was therefore categorised as a cost-consequences analysis.

**Direct costs**
The direct costs to the Greek health care system were included in the analysis. These covered the costs of providing the dialysis service, medications, the upkeep and replacement of equipment, doctors' and medical staff salaries, transport to and from the hospital, and hospitalising patients. The authors omitted the fixed hospital costs from the analysis as they were considered to be minimal. They also reported that the costing exercise did not cover certain expenditures such as overhead costs and the costs of water purification. It would appear that the costs were derived from the authors' own settings. Since the costs were incurred during a 1-year period, discounting was not relevant and was appropriately not performed. The study reported the average costs. The price year was not reported.

**Statistical analysis of costs**
The costs were treated as point estimates (i.e. the data were deterministic).

**Indirect Costs**
The indirect costs were not reported.

**Currency**
Euros (Euro).

**Sensitivity analysis**
No sensitivity analyses were performed.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.

**Cost results**
The average annual cost of HD was Euro45,478.58 per patient, while the average annual cost of PD was Euro38,359.34.
Synthesis of costs and benefits
The costs and benefits were not combined.

Authors' conclusions
Given the ever-increasing cost of end-stage renal disease (ESRD) and the growing shortage of resources available, it has become ever more important to assess which method is most efficient. Therefore, the authors concluded that analyses such as their own could help formulate decisions about the preferred treatment method.

CRD COMMENTARY - Selection of comparators
The authors compared HD and PD as these two interventions were current practice in their own setting. You should decide if these interventions are current practice in your own settings.

Validity of estimate of measure of effectiveness
The analysis was based on a prospective cohort study. A randomised controlled trial (RCT) would have been a more appropriate study design to compare HD and PD, as well-conducted RCTs are the ‘gold’ standard study design when comparing health interventions as there is a lower potential for bias and confounding. For example, the authors reported that the sample population selected would have most likely affected the results. The authors reported the demographic and clinical data of patients in both treatment groups. However, they did not perform any statistical analyses to determine whether the groups differed significantly from each other in a particular baseline characteristic. The authors compared ten pairs of patients from the sample which were demographically and clinically similar (the only difference between them being the treatment modality used), and found the reported average difference increased from 6.5 to 11.3%. No statistical analyses were undertaken to test whether differences in quality of life outcomes were significantly different between the patient groups.

Validity of estimate of measure of benefit
The authors did not derive a measure of health benefit. The reader is thus referred to the comments in the ‘Validity of estimate of measure of effectiveness’ field (above).

Validity of estimate of costs
All the categories of cost relevant to the perspective adopted were included in the analysis. Although all major relevant costs were included, some minor costs were omitted (e.g. hospital fixed costs and overheads). These omissions are unlikely to have affected the authors’ results. The costs and the quantities were not reported separately, although the authors reported the costs by resource category, which will increase the generalisability of their results to other settings. The costs appear to have been derived from the authors' settings. No sensitivity or statistical analysis of the costs was performed. Hence, it was not possible to determine whether differences between the groups were statistically significant or the uncertainty around the point estimates. Since all the costs were incurred during one year, discounting was not relevant and was therefore not performed. The price year was not reported, which will hamper any future inflation exercises.

Other issues
The authors did not make appropriate comparisons of their findings with those from other studies. The issue of generalisability to other settings was not addressed. The results from this study should be treated with caution, as the study sample was selected (i.e. treatment allocation was not randomly assigned) and differences in quality of life and cost outcomes were not tested for statistical significance. The authors reported that the study should be extended to a cost-utility analysis by assessing not only the utility levels for each treatment modality, but the period of time that the patients spend at these health states.
Implications of the study
Based on the authors' results, the results of this study would suggest that PD was dominant over HD (i.e. it was more effective and less costly). However, the results of this study should be treated with caution.

Source of funding
None stated.

Bibliographic details

Other publications of related interest


Indexing Status
Subject indexing assigned by CRD

MeSH
Comparative Study; Efficiency, Organizational /statistics & numerical data; Greece; Hemodialysis Units, Hospital /organization & administration /standards /statistics & numerical data; Kidney Diseases; Kidney Failure /prevention & control /therapy; Peritoneal dialysis /economics; Quality of life; Renal Dialysis /economics; Socioeconomic Factors

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