HLA-identity-long-term renal graft survival, acute vascular, chronic vascular, and acute interstitial rejection

Baltzan M A, Shoker A S, Baltzan R B, George D

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
HLA-identical renal transplantation.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients receiving renal grafts.

Setting
Hospital. The economic study was carried out in Saskatoon, Canada.

Dates to which data relate
Effectiveness data were collected between 1965 and 1995. The date for the resource utilisation data was not specified. The price year was 1995.

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

Link between effectiveness and cost data
Costing was carried out retrospectively, but it was not clear whether or not it was undertaken on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were not used to determine the sample size. A total of 46 patients received 48 renal grafts. They ranged in age from 14 to 63, with an average of 33 years. A total of 19 recipients were female and 27 male. The donors consisted of 28 female and 20 male. The 28 female kidneys were given equally to men and women; of the male kidneys, 13 were given to male and 7 to female patients, with no statistically significant difference noted.

Study design
Case series, carried out in a single centre. The duration of the follow-up was 9 years.
Analysis of effectiveness
It was not explicitly stated whether the analysis was based on intention to treat or on treatment completers only. The main health outcomes used in the analysis were actuarial survival (by Kaplan-Meier method), death rate, success rate in repeat grafts and reaction to pulse steroids.

Effectiveness results
Ten-year all graft actuarial survival was 84%, 10-year actuarial graft survival in patients with primary renal disease was 90%, with subsequent graft after first HLA-graft failed it was 97.5%, and for the age-matched population it was 98.5% (p=NS). The overall death rate was 8.7% (4/46), in secondary renal disease patients it was 50% (3/6) and in primary renal disease patients it was 2.5% (1/40). All (9/9) HLA-identical second grafts functioned and all acute rejections (13 cases) were reversed by pulse steroids alone.

Clinical conclusions
This review identified four characteristics of acute rejection in HLA-identical grafts. They are:

1. a high incidence with azathioprine/prednisone prophylaxis,
2. an incidence reduction by prior transfusion or cyclosporine prophylaxis,
3. a benign nature as evidenced by uniform reversibility on a single course of pulse steroids even in second grafts, and
4. no association with chronic rejection.

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic study, and only separate clinical outcomes were reported.

Direct costs
Costs were not discounted. Resource utilisation was not reported separately from the costs. Cost items were reported separately. Direct health service costs were considered: physician fees, transplantation, dialysis, cost of immunosuppressive drugs for grafts and erythropoietin for dialysis. Laboratory costs were omitted. The sources of the cost data were local institutions and hospitals. All costs were measured in 1995 Canadian dollars.

Indirect Costs
Not considered.

Currency
Canadian dollars (Can$).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The HLA-identical graft cost/patient/year with initial graft costs amortised over 9 years, was Can$3,855, whilst the comparable dialysis cost would be Can$35,650. The cost for all patients (46) on dialysis for 9 years would be Can$11,293,320, while the comparable graft cost was Can$1,221,418, a saving of 89.2%.

Synthesis of costs and benefits
Not applicable.

Authors' conclusions
HLA-identity associates with the following: (1) a 10-year actuarial survival in primary renal disease that equals that of aged-matched population; (2) uniform success in repeat grafts; (3) virtual absence of chronic rejection; (4) reversal of acute rejection on pulse steroids; (5) cost reduction for grafting of 93.2% compared with dialysis therapy.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator (renal dialysis) is clear.

Validity of estimate of measure of benefit
The internal validity of the effectiveness results is weakened by the absence of randomisation and a proper control group.

Validity of estimate of costs
Costs were not discounted and resource utilisation was not reported separately from the costs. Few details of the methods of quantity/cost estimation were given and is therefore difficult to assess whether any important cost items were omitted.

Other issues
Given the lack of randomisation, sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution. Cost data may not be generalisable to other settings or countries.

Source of funding
None stated.

Bibliographic details

PubMedID
8623153

Indexing Status
Subject indexing assigned by NLM

MeSH
Acute Disease; Adolescent; Adult; Female; Graft Rejection /immunology; Graft Survival /immunology; HLA Antigens /immunology; Humans; Kidney /blood supply; Kidney Transplantation /immunology; Male; Middle Aged; Quality of Life; Risk Factors; Time Factors; Vascular Diseases /immunology

AccessionNumber