

What mediates socioeconomic inequity in access to living-donor kidney transplantation? Results from a multicentre case-control study

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Introduction

A living-donor kidney transplant (LDKT) is the best treatment for most people with kidney failure, but there is evidence of socioeconomic inequity in access to a LDKT. Socioeconomic position is not amenable to clinical intervention so we aimed to identify variables that mediate the described socioeconomic inequity and are amenable to intervention.

Methods

We undertook a case-control study across 14 UK renal units. Cases were defined as LDKT recipients and controls were deceased kidney donor transplant (DDKT) recipients. A previously developed and validated questionnaire was posted to adults (>18 years) transplanted at the centres between 1/4/13 and 31/3/17, with one reminder after 4-6 weeks. Participants could complete a paper or online version. We collected data on key potential mediators identified in early qualitative work: perceived social support (using the ISEL-12 measure), patient activation (using the PAM13 measure), and transplant knowledge (using the R3K-T measure). We also collected patient demographics and the number and suitability of family members who could be kidney donors. We performed multivariable logistic regression to look at the association between the above measured variables and receipt of a LDKT. We then used mediation analyses to investigate what proportion of the effect of socioeconomic position on case-control status was mediated by each variable.

Results

1239 questionnaires were returned from 3172 patients (39% response). Receiving a LDKT over a DDKT was associated with higher levels of social support (Odds Ratio (OR) per +1 ISEL-12 score 1.06, 95% Confidence Interval (CI) 1.04-1.09, $p < 0.001$), higher levels of patient activation (OR per +1 PAM level 1.36, 95% CI 1.28-1.45, $p < 0.001$), and greater transplant knowledge (OR per +1 point R3K-T score 1.57, 95% CI 1.48-1.67, $p < 0.001$) (Table 1). The number of potential donors available to an individual wasn't associated with the likelihood of receiving a LDKT over a DDKT (OR per +1 potential donor 1.0, 95% 0.99-1.01, $p = 0.97$).

As previously described, people with higher socioeconomic position were more likely to receive a LDKT: OR university education vs no university education OR 1.39, 95% CI 1.13-1.73, $p = 0.002$ and OR per £1000 increase in income OR 1.14, 95% CI 1.11-1.17, $p < 0.001$. Mediation analyses using income as the socioeconomic exposure variable revealed that the following variables were mediators of the socioeconomic inequity:

- i) social support (% of total effect mediated (TEM) 21.1, 95% CI 17.5-24.6);
- ii) patient activation (%TEM 5.6, 95% CI 4.8-7.0), and
- iii) transplant knowledge (%TEM 43.3, 95% CI 35.8-56.0).

Discussion

Low levels of perceived social support are associated with a reduced likelihood of receiving a LDKT. However there is no evidence that recipients of DDKTs lack potential donors, and therefore the perception of the lack of support may either reflect a misperception or less strong social ties. There is evidence that the variables of transplant knowledge, social support and patient activation are mediators of the well described socioeconomic inequity in access to LDKTs. The next step is to develop and trial interventions that target these factors to improve access to living-donor kidney transplantation for disadvantaged individuals in the UK.