Effectiveness of medical compared to multidisciplinary models of care for adult persons with pre-dialysis chronic kidney disease: a systematic review

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CRD summary
The authors concluded that multidisciplinary care was effective in delaying the progression of chronic kidney disease in adults who were in the pre-dialysis phase of this condition. The reliability of the authors’ conclusions is uncertain due to the small number and unclear quality of the included studies and potential for language and publication biases.

Authors’ objectives
To compare the effectiveness of multidisciplinary care with traditional medical care on the progression of chronic kidney disease in adult pre-dialysis patients.

Searching
Eleven databases, which included MEDLINE, CINAHL, PsycINFO and The Cochrane Library, were searched for articles published in English from January 1990 to July 2009. Search terms were reported. Relevant journal websites and reference lists of identified reports and articles were searched for additional studies.

Study selection
Randomised controlled trials (RCTs) and observational studies that compared traditional medical care and multidisciplinary team care of adult patients (aged 18 to 70) with pre-dialysis chronic kidney disease and evaluated renal function or quality of life were eligible for inclusion. Studies could include pharmacologic and non-pharmacological interventions. Eligible outcomes were a range of renal function tests as well as quality of life. Studies of patients in hospital or other care settings were excluded.

Interventions in the studies included pre-dialysis psycho-education, education provided by a renal nurse, dietician and social support or a disease management programme. No details of control groups were reported. Mean ages of patients ranged from 57 to 77 years, where reported. From 32% to 60.3% of participants were men. Comorbidities varied between studies. Studies were conducted in Canada, USA and UK. Outcomes reported included blood pressure control, estimated glomerular filtration rate (eGFR), creatinine clearance (CrCL), time to renal replacement therapy, metabolic control, anaemia and general health and well being.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
Two reviewers independently assessed study quality using the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument.

Data extraction
Relevant renal function and quality of life outcomes were extracted.

The authors did not state how many reviewers conducted the data extraction.

Methods of synthesis
Data from the studies were described narratively due to wide variation between studies.

Results of the review
Four studies (1,557 participants) were included in the review: two randomised controlled trials and two observational studies.

Blood pressure (three studies): One observational study reported that 20% of participants in the multidisciplinary care group reached good blood pressure control at follow-up and reached the treatment target (130/80mmHg). One
observational study reported significant reductions in systolic and diastolic blood pressure at follow-up for multidisciplinary care in patients without diabetes but no significant differences for patients with diabetes. One RCT reported no significant differences in blood pressure over time or between multidisciplinary care and traditional medical care.

eGFR/CrCL (three studies): One observational study reported a statistically significant decline in eGFR at 12 months post enrolment. Another RCT and one observational study reported no statistically significant differences between groups over time.

Time to renal replacement therapy (one study): One RCT reported a 100% increase in time to renal replacement therapy after a predialysis psycho-educational intervention compared to traditional care.

Metabolic and anaemia control (three studies): One RCT and two observational studies reported increased values and signs of improved control post intervention.

General health and well being (one study): One RCT reported that after a psycho-educational intervention increased knowledge was significantly correlated with delay in renal replacement therapy. No significant differences were reported between groups for depression, anxiety and social support (data not reported).

Authors’ conclusions
Multidisciplinary care was deemed to be effective in delaying progression of chronic kidney disease in adults who were in the pre-dialysis phase of this condition. Education that aimed to increase the knowledge and understanding of the causes of chronic kidney disease was an important component of the care.

CRD commentary
The review question was clear with defined inclusion criteria. Several relevant sources were searched. The limitation to studies published in English meant there was the potential for language and publication biases. A quality assessment was conducted but as the authors did not report the results of this assessment it was difficult to assess the reliability of the evidence. The authors used appropriate methods to reduce reviewer error and bias during the assessment of study quality; it was unclear whether similar methods were used for study selection and data extraction. A narrative synthesis was appropriate given the differences between studies.

The reliability of the authors' conclusions is uncertain due to the small number and unclear quality of the included studies and potential for language and publication biases.

Implications of the review for practice and research
Practice: The authors stated that members of multidisciplinary teams should draw on their specific expertise to educate patients about chronic kidney disease. Nephrologists and nurse practitioners should devise a management plan together with their patient and provide regular reviews.

Research: The authors stated a need for further research on the best models of education for patients with pre-dialysis chronic kidney disease and should include investigation into who was ideally suited to provide education. Future studies should evaluate safety and cost effectiveness as well as patients' experiences of care and impacts on their independence and well being. Research was also needed into multidisciplinary care in clinics in Australia.

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