

Acceptance onto Dialysis Guidelines

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Predialysis education

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GUIDELINES

No recommendations possible based on Level I or II evidence

SUGGESTIONS FOR CLINICAL CARE

(Suggestions are based on Level III and IV evidence)

- **Patients and their families or carers should receive sufficient information and education regarding the nature of end stage kidney disease (ESKD), and the options for the treatment to allow them to make an informed decision about the management of their ESKD (Level III evidence). The use of multidisciplinary clinics with input from medical, nursing and allied health personnel using standardised protocols for the preparation of patients for dialysis is one way of achieving this outcome. Predialysis education programmes providing information about kidney disease, options for the management of chronic kidney disease (CKD) prior to dialysis (including pharmacological and dietary management) and the options for renal replacement therapy may also be beneficial. These clinics or education programmes should incorporate a mechanism for the timely referral of patients for the creation of an access for dialysis. Existing data suggest that these clinics and education programmes may facilitate the improved medical care of patients (for example, better control of anaemia and hypertension), greater patient involvement in the selection of the mode of dialysis, a reduction in the need for 'urgent start' dialysis, and improved short-term survival and quality of life after the initiation of dialysis.**

Background

Given the evidence that late initiation of dialysis is associated with increased morbidity and mortality, several investigators have addressed the issue of the most effective means of managing the transition between CKD and dialysis. A variety of approaches to this phase of management are described. These include the implementation of standardised protocols for the preparation of patients for dialysis by a patient's usual physicians, with emphasis placed on timely referral for creation of the access. Alternatively, the use of multidisciplinary clinics incorporating the involvement of renal physicians and nursing staff, dieticians and pharmacists is also described. Education programmes providing information about renal disease, options for the management of CKD prior to dialysis (including pharmacological and dietary management) and the options for renal replacement therapy are provided either as an integral part of these clinics or as an associated programme.

Concern has been raised about the cost-benefit of this approach by some investigators, however, there are currently no detailed cost-benefit analyses of these clinics reported in the literature. At present, most of the data is qualitative and compare outcomes of intervention groups with historical controls. However, there is some evidence that structured predialysis education programmes are effective in facilitating a planned approach to commencement of dialysis and influencing quality of life and outcomes on dialysis. As there is only one study providing Level II evidence (evidence from at least one properly designed RCT), the outcome of this review has been a Suggestion for Clinical Care rather than a Guideline.

Search strategy

Databases searched: Medline (1966 to April Week 2 2004). MeSH terms and text words for kidney disease were combined with MeSH terms and text words for pre-dialysis and patient education. The results were then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and MeSH terms and text words for identifying meta-analyses and systematic reviews. The Cochrane Renal Group Specialised Register of randomised controlled trials was also searched for relevant trials not indexed in Medline.

Date of searches: 23 April 2004.

What is the evidence?

There are no systematic reviews on this topic.

Randomised controlled prospective studies

Devins et al (2003) reported the results of a randomised controlled trial (RCT) in which predialysis patients received either usual care or predialysis psycho-educational intervention (PPI). The study was a multicentre Canadian study. PPI consisted of a 90-minute educational slide presentation which covered aspects of normal kidney function, changes in CKD, information about nutritional and medication

treatment of CKD and options for renal replacement therapy. Patients were followed up every 3 weeks by a 10-minute phone call, during which illness-related developments were reviewed. Usual care encompassed the usual exchange of information and treatments provided by the patients' renal physicians. A total of 149 patients were randomised to the intervention (PPI) and 148 patients to usual care. Criteria for the initiation of dialysis were the same in each group. Time to dialysis was significantly extended in the PPI group (17.0 vs 14.1 months, $p < 0.001$). Knowledge acquisition predicted time to dialysis treatment, and patients in the PPI group demonstrated more illness-related knowledge. Patients whose primary illness-coping mechanism was avoidance of threat-related information (blunting) demonstrated a shorter time to dialysis in the usual care treatment group but PPI extended the time to dialysis in this patient subpopulation.

Evidence from comparative studies

Levin et al (1997) reported the results of a multidisciplinary predialysis education programme conducted at St Paul's Hospital, Vancouver. Thirty-seven patients referred to a multidisciplinary clinic-based education were compared with a concurrent cohort of 39 patients who received individualised patient care from a nephrologist. The multidisciplinary predialysis education programme consisted of discussion about renal function, blood pressure, bone disease and diet in separate sessions over multiple visits. At each visit, patients were seen by a nurse educator, physician, social worker and dietician. Patients in both groups had a formal orientation to dialysis session lasting 2 to 3 hours delivered by the same personnel. Mean creatinine at commencement of dialysis was not different between the two groups. In patients who had participated in predialysis education, there was a significant reduction in the need for urgent dialysis (13% vs 35%, $p < 0.05$) and more patients trained as outpatients (76% vs 43%, $p < 0.05$) compared with the standard care group. In addition, the mean number of hospital days during the first month of dialysis was significantly reduced (6.5 vs 13.5 days, $p < 0.05$). Significant improvements in control of blood pressure, calcium, and phosphate were also noted in the clinic group. These outcomes were achieved with significant cost savings.

Klang et al (1998) prospectively evaluated the effect of a predialysis education programme on functional outcome and wellbeing in 28 uraemic patients in a case-controlled study design. The education programme consisted of group sessions dealing with renal disease, dietary restriction, options for renal replacement therapy, information about physical exercise and about the social impact of CKD in individual patients. Patients who participated in the education programme scored significantly better on outcome measures such as mood, functional disability and anxiety and had less mobility problems. These differences were apparent when subjects commenced dialysis and over a 6-month follow-up period on dialysis.

Ravani et al (2003) reported the outcomes of predialysis patients who were referred to a predialysis education programme (PEP) ($n = 93$) compared with those receiving usual nephrological care ($n = 52$) and patients who had late referral to a nephrologist ($n = 84$). The study reviewed outcomes in patients referred to two Italian centres over a 30-month period. A total of 229 patients with a median age of 70 years participated

in the study. PEP consisted of referring patients to a clinic staffed by nephrologists and nurses who conducted an education programme and implemented 'recommended care strategies', which were not detailed in the publication. Patients receiving PEP had a significantly higher rate of planned initiation of dialysis and a significantly better 1-year survival after initiation of dialysis than did patients in the other two groups.

Evidence from case series

Levin et al (1997) reported a retrospective analysis of a structured education programme at Toronto Hospital. The programme consisted of a two-evening education programme covering options for living with ESKD, nutrition and medications, and follow-up in a predialysis clinic attended by a dialysis physician, renal nurse coordinator and social worker. Endpoints were initiation of dialysis access before commencement of dialysis, rates of inpatient dialysis starts, and length of stay in hospital at initiation of dialysis. An increased rate of predialysis access creation was documented, but there was no significant change in the number of urgent dialysis starts, hospital admissions or length of hospital stays for patients treated by haemodialysis. The authors commented that the lack of haemodialysis resources might have impeded the impact of the predialysis programme.

Ghossein et al (2002) reported interim results of the 'Healthy Living' predialysis education programme at North Western University, Chicago. This multidisciplinary clinic was conducted by nephrologists, nursing staff and dieticians with access provided to social workers as required. The programme incorporated educational material about dialysis, a tour of the dialysis facility and referral to an access surgeon 6–9 months prior to the intended initiation of dialysis. No control group was incorporated in the study. Patients with a functioning access at the time of initiation of dialysis were characterised by more frequent visits to the clinic than those who did not have a functioning access ($20 \pm$ vs $4.4 \pm$ visits, $p < 0.005$). In a group of 80 patients with stage III–V CKD (K/DOQI 2002), average calculated GFR was stable over a period of 15 months of follow-up.

Uncontrolled observations suggest that multidisciplinary predialysis clinics result in improvements in control of anaemia and also assist patients with the process of choosing the optimal modality of dialysis (Golper 2001).

Summary of the evidence

There is Level II (Devins et al 2003) and Level III (Klang et al 1998) evidence that predialysis education may improve illness-coping mechanisms in patients who commence dialysis. There is Level III (Levin et al 1997, Ravani et al 2003) and Level IV evidence (Levin et al 1997, Ghossein et al 2002) that multidisciplinary predialysis clinics result in improved rates of planned initiation of dialysis and a lower prevalence of urgent-start dialysis. There is Level III evidence (Levin et al 1997, Ravani et al 2003) that multidisciplinary predialysis clinics result in improvements in control of blood pressure, calcium-phosphate balance and anaemia.

In summary, the current literature suggests that structured protocols or multidisciplinary clinics for management of the transition of patients from CKD onto dialysis may result in measurable benefits in patient outcomes. The primary measurable outcomes of these interventions are a reduction in the requirement for urgent-start dialysis and an increased frequency of long-term functioning access in patients at the time dialysis is initiated. Secondary outcomes include improvement in control of blood pressure, haemoglobin and calcium-phosphate product in predialysis patients.

What do the other guidelines say?

Kidney Disease Outcomes Quality Initiative: No recommendation.

British Renal Association: Patients with progressive renal failure should be managed in a clinic with multidisciplinary support from dietitians and specialist nurses. (Good practice)

European Best Practice Guidelines: Patients whose GFR is < 30 mL/min and declining despite therapy should be under the care of a nephrologist and be prepared for the onset of end-stage renal failure. This preparation includes choosing the most appropriate location (e.g. home or hospital) and the form of treatment (e.g. HD, CAPD, pre-emptive transplantation or conservative treatment). This choice will involve discussion between patients, their families and nephrology staff. This process may need support from specialist renal counsellors and social workers. (Evidence level C)

Canadian Society of Nephrology: No recommendation.

Implementation and audit

Suggestions for implementation:

The process of managing the transition of patients from medical therapy onto renal replacement therapy may be facilitated by:

- i) maintaining a database which identifies patients with advanced CKD who are approaching renal replacement therapy, and which provides a mechanism for tracking changes in renal function in these patients,
- ii) initiation of a standardised predialysis education programme for patients nearing the commencement of dialysis, incorporating information about dialysis modalities and dietary and pharmacological interventions required for the management of advanced CKD,
- iii) initiation of standardised protocols for management of patients approaching renal replacement therapy with particular emphasis on timely referral for creation of dialysis access or pretransplant assessment where relevant.

The outcome of these interventions may be assessed by recording:

- i) the number of patients requiring urgent commencement of dialysis (through ANZDATA registry),
- ii) the number of patients who have a long-term functioning dialysis access at the time dialysis is commenced (through ANZDATA registry),
- iii) a database of predialysis patients recording achieved calcium-phosphate product and haemoglobin targets (maintained locally).

Suggestions for future research

Further controlled prospective studies comparing formal multidisciplinary predialysis education with standard nephrological care are required. In particular, the cost-effectiveness of these programmes and their impact on patient morbidity, mortality and quality of life needs to be established.

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References

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Appendix

Table 1 Characteristics of included studies

Devins et al 2003	RCT comparing illness-coping behaviour between a group of patients receiving predialysis psycho-educational intervention (in 149 patients) with usual care (in 148 patients).
Levin et al 1997	Non-randomised trial comparing outcome of 37 patients referred to a multidisciplinary predialysis clinic with 39 patients receiving usual care from a nephrologist. The report also incorporated a retrospective review of the outcomes of a structured education programme.
Klang et al 1998	Case-controlled study describing functional outcome of 28 patients referred to a predialysis education programme.
Ravani et al 2003	Non-randomised study comparing outcomes in 93 predialysis patients referred to a predialysis education programme with a group of 52 patients receiving usual nephrological care and 84 patients who had later referral to a nephrologist.
Ghossein et al 2002	Interim report of a non-randomised study describing outcomes of patients referred to a multidisciplinary predialysis clinic.

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