

Late nephrology referral and mortality

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TITLE Late nephrology referral and mortality among patients with end-stage renal disease: a propensity score analysis

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LIST OF ABBREVIATIONS Blood pressure (BP), early referral (ER), late referral (LR)

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SUMMARY

A number of observational and/or single centre studies have looked at ER vs LR to nephrology for patients with varying levels of renal dysfunction. The majority have shown benefit for ER and or increased morbidity/mortality associated with LR. Whether LR is a marker for increased co-morbidity, and hence only associated with LR, and not causal is not clear.

This study, from Boston, USA, looked at 2,195 incident patients from the Dialysis Morbidity and Mortality Study starting dialysis in 1997 and used propensity score analysis to attempt to balance comorbidities in the LR and ER groups. Late referral was defined as first nephrology visit < 4 months prior to dialysis initiation and ER as first nephrology visit > 4 months prior to dialysis initiation.

The cohort of 2,195 patients survived the first 60 days of dialysis and had at least one year of potential follow-up. Sixty-seven per cent of these patients were ER and were more likely to be Caucasian, have private medical insurance, be employed, married and college graduates, start on peritoneal dialysis and have diabetes mellitus as a cause of renal failure. Patients in the LR group were less likely to be able to walk independently and more likely to be unemployed due to disability compared to the ER group.

Cox proportional hazards analysis demonstrated that, compared to ER patients, LR patients had a 44% higher risk of death at one year after initiation of dialysis and this remained significant after adjusting for quintiles of propensity score.

In conclusion, the authors noted that LR was common in the USA and, for patients who survived the first 60 days after initiation of dialysis, LR was associated with a higher

risk of death in the first year and during overall follow-up after the study start date compared with patients with ER. Early referral, especially of patients with multiple comorbidities, may help improve outcomes.

OPINION

Although this paper evaluates the timing of referral to nephrology clinics and subsequent dialysis initiation (and subsequent mortality) in North America, there are definite messages for those working elsewhere, both in primary and secondary care.

The Renal Association standards document¹ and the National Service Framework for Renal Services² in the UK both recommend ER:

- Patients with progressive renal failure should be referred to a nephrologist early in the course of their disease (serum creatinine 150–200 mol/l) to enable dialysis to be started in a planned fashion.
- Referral to a multiskilled renal team, where possible, at least one year before the anticipated start of dialysis treatment, for appropriate clinical and psychological preparation.

If these patients can be referred and evaluated 'early' – what can a nephrologist offer? Ideally, patients will be seen in separate predialysis or 'low clearance' clinics with multidisciplinary teams working to optimise their condition and hopefully delay progression of renal failure.³ Important goals in this respect are listed below:

- Blood pressure target of 130/80 with stable renal function and 125/75 with progressive proteinuric renal disease.
- Control of secondary hyperparathyroidism with

phosphate binders and judicious therapy with vitamin D derivatives.

- Prevention of malnutrition with appropriate dietary intervention.
- Treatment of the anaemia of renal failure with erythropoietin and iron as required to maintain a Hb at least above 10 g/dl.
- Control conventional cardiovascular risk factors including BP control, cholesterol reduction, smoking cessation, aspirin therapy, and encouragement of exercise programmes.⁴
- Education of patients and relatives will enable an appropriate choice of renal replacement therapy – a choice between hospital or home haemodialysis, peritoneal dialysis, or pre-emptive for renal transplantation either from a cadaveric, related or unrelated (spousal) live donor.
- Timely initiation of this chosen therapy should provide

the best chance of rehabilitation for the patient – planning should include the elective creation of appropriate dialysis access.

In summary, ER to nephrology allows time to reach an accurate diagnosis, delays progression of established renal failure, corrects cardiovascular risk factors and educates patients and their families so that they may choose the appropriate treatment and start that treatment at the appropriate time. The workload involved in implementing these measures may be considerable, but with the multidisciplinary team of nephrologists, nurse specialists, dieticians, counsellors and social workers, perhaps with shared care protocols in the community, we will hopefully be able to reduce the excess mortality seen with LR and dialysis initiation documented as occurring in North America – it also happens here and can be avoided or at least reduced!

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