Chronic kidney disease: why is current management uncoordinated and suboptimal?

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Abstract

Morbidity and mortality associated with chronic kidney disease (CKD) is higher than that of the normal population, and the incidence of end-stage renal disease (ESRD) continues to increase. Several factors contribute to the uncoordinated and suboptimal management of CKD, including the attitude and behaviour of nephrologists, referring physicians and patients, and economic constraints on healthcare systems. Late referral of at-risk patients to specialist care is an area of particular concern, as this denies nephrologists adequate opportunity to prevent progression of CKD and associated complications such as anaemia. Due to the ageing population and advances in technology, the costs of treating CKD and ESRD continue to escalate and represent another barrier to the delivery of optimal care. Optimizing the care provided to CKD patients requires a coordinated approach to the management of the condition. Closer collaboration and improved communication across specialties is important for the timely referral of patients and for efficient utilization of available resources. A multidisciplinary approach may facilitate patient identification and improve the management of CKD.

Keywords: anaemia; chronic kidney disease; collaboration; communication; education; end-stage renal disease

Introduction

Morbidity and mortality associated with chronic kidney disease (CKD) is higher than that of the normal population, and the incidence of end-stage renal disease (ESRD) continues to grow at an alarming rate [1]. A number of aspects impact on the care provided to patients with CKD and contribute to the uncoordinated and suboptimal management of the condition. These include the attitude and behaviour of nephrologists, referring physicians and patients, as well as the healthcare environment in which physicians work. This paper will explore some of the barriers to delivery of optimal care to patients with CKD and look at an example of how adoption of a coordinated team approach can improve the care of these patients.

Referral patterns

The high number of late referrals is an area of particular concern. Late referral has a negative impact on patient survival and other clinical outcomes, as it represents lost opportunities for preventing kidney disease progression. Additionally, early treatment for anaemia and other complications of renal failure cannot be provided, preparation for dialysis treatment is likely to be inadequate, and the ability to select the most appropriate dialysis modality is impaired.

The Spanish Survey on Pre-dialysis Management was a retrospective evaluation of the care of patients with CKD, with particular focus on referral patterns, and the initiation of haemodialysis (HD) treatment and erythropoietin treatment [2]. The survey found that co-morbidities were frequently present at referral and it was often too late to prevent the progression of
CKD, even though 62% of patients were referred to specialist care more than 12 months prior to initiation of dialysis (Figure 1). Diabetic nephropathy was the most common cause of end-stage renal failure among patients in the survey, yet diabetologists or endocrinologists were responsible for less than 6% of referrals, with most patients referred by their general practitioner (34%). At the first visit to the nephrologist, >70% of patients had a creatinine clearance rate of <30 ml/min, and 45% of patients had a haemoglobin (Hb) level below the minimum level (11 g/dl) recommended in the European Best Practice Guidelines (EBPG) [3].

The Spanish survey also looked at renal function and Hb levels at initiation of HD treatment. More than 70% of patients had a creatinine clearance rate of <10 ml/min when HD was initiated, and 75% of patients had a Hb level of <11 g/dl; in 55% of patients the Hb level was below 10 g/dl.

The impact of late referral of ESRD patients on the choice of dialysis modality and on morbidity and mortality was evaluated in a recent European survey [4]. The survey found that 25–30% of patients were referred to the nephrologist less than 1 month before starting dialysis (late referral). Late referral patients were more often started on HD than early referral patients (77% vs 51%, P < 0.001), and the creatinine clearance rate at first visit to the renal unit was lower in late compared with early referral patients (6.9 vs 28.1 ml/min, P < 0.001). In addition, the prevalence of both uraemic symptoms and pulmonary oedema at the start of renal replacement therapy (RRT) was higher in the late referral patients. An extended survey in Flemish renal units revealed that, 1 year after the start of RRT, the number of deaths was higher (26.7% vs 16.4%) and the number of transplanted patients lower (4.7% vs 17.5%) in late referral patients [4].

### Anaemia treatment

Available evidence supports the early treatment of anaemia among CKD patients, and the EBPG recommends consideration of erythropoietin therapy when the concentration of Hb is consistently below 11 g/dl for pre-dialysis as well as dialysis patients [3]. The European Survey of Anaemia Management (ESAM) revealed the strikingly low number of patients starting erythropoietin therapy in the pre-dialysis phase [5]. Only 11% of HD patients and 31% of peritoneal dialysis patients received erythropoietin before dialysis. This survey also showed that the Hb levels, at which erythropoietin therapy was initiated, were very low (<9 g/dl) in relation to the EBPG recommendations. The findings of ESAM are reinforced by those of the Spanish Survey on Pre-dialysis Management, in which 63% of patients did not receive treatment with erythropoietin prior to HD, and the mean Hb level for initiation of erythropoietin therapy was 9.1 g/dl (Figure 2) [2].

### Impact of the resource environment on delivery of care

Within most healthcare systems there will be financial barriers to optimal treatment of CKD. For example, in the US, which has the highest prevalence of the disease in the world, spending on ESRD has risen dramatically over the last 5 years, and is forecast to have reached $28 billion in 2010 [6]. The reasons underlying the increased cost of ESRD include an ageing population, advances in technology, fear of litigation and over-utilization of available tests and procedures.

Given that resources for providing healthcare will be subject to restrictions, their efficient use is important if patient outcomes are to be improved. Late referral of CKD patients to the care of a nephrologist results in unnecessary use of available resources by reducing the opportunities for preventing disease progression and for early correction of anaemia. Consequently, co-morbidities such as left ventricular hypertrophy, heart failure and ischaemic heart disease are more likely to develop; these conditions will require medical attention and contribute to the increasing cost of ESRD management. Improving communication and collaboration between referring physicians will enable...
earlier identification of patients with CKD, and consequently early management of anaemia, which in turn will minimize the development of complications. This will result in more efficient use of resources in the long term.

One way of utilizing resources more efficiently is case management, a collaborative process that aims to meet an individual’s health needs with available resources. Case management involves evaluating existing options and services, establishing a treatment plan and then coordinating and monitoring the implementation of the plan. The objectives of case management are to improve communication and collaboration between healthcare providers in order to reduce the incidence and severity of conditions, thereby controlling the utilization of resources.

Improving the management of CRI—an example from Canada

As with the rest of the civilized world, the incidence of ESRD in Canada continues to grow at an alarming rate, with 160 new cases per million population in 1999 compared with 49 in 1981 [7]. Currently, most CKD and dialysis care in Canada is provided in academic centres. Erythropoietin therapy is widely available to both CKD and dialysis patients through dialysis centres, although only 50% of patients currently receive erythropoietin at initiation of dialysis.

In recent years, specialized CKD clinics have been set up in an attempt to facilitate and improve management of patients, and allow co-morbidities such as anaemia to be addressed in a timely fashion. A multi-disciplinary team, including a nephrologist, renal dietician and nurse practitioner, staffs these clinics, and other specialities can be called upon as appropriate. The clinics aim to adopt a flexible, team approach to CKD care, and patients follow a clinical pathway that involves education, evaluation, counselling, consultation and planning. Educating patients and their families allows them to make informed choices about the management of CKD and any complications.

Recent data from one Canadian centre indicates that 20% of patients attending a specialized CKD clinic began dialysis at a creatinine clearance rate of >15 ml/min, which might be considered an early dialysis start (Muirhead, unpublished data). However, many patients are still not referred until their renal failure is quite advanced, with approximately 20% of referred patients having a creatinine clearance of <15 ml/min and 45% having Hb levels below 11 g/dl. Thus, while the CKD clinics have facilitated a planned dialysis start for some patients, further progress is still to be made.

Conclusion

Improving the prognosis of patients with CKD requires a coordinated approach to the management of the condition in order to optimize the care provided. Education of nephrologists, other physicians and patients is essential for coordinated management, and closer collaboration between nephrologists and other physicians is crucial to reducing the problem of late referral. Timely referral of patients provides nephrologists with a better opportunity of delaying the progression of CKD and associated complications such as anaemia, thereby improving patient outcomes. Better communication and collaboration across specialities is also important if available resources are to be utilized more efficiently. Specialized, multi-disciplinary clinics, such as those established in Canada, may facilitate patient identification and improve the management of CKD.

References


Fig. 2. Haemoglobin (Hb) levels at initiation of erythropoietin therapy (adapted from Cruz [2]). The mean Hb level at initiation of treatment was 9.1 g/dl; EBPG recommends consideration of therapy when Hb is below 11 g/dl.


7. Report of the Canadian Institute for Health Information/Canadian Organ Replacement Register, 2001