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Primary care based automated detection and algorithm driven online decision support improves outcomes for patients with chronic kidney disease

Historically, more than 95% of patients presenting for dialysis in Abu Dhabi do so as an emergency. This is far higher than would be seen in Western Europe where the figure is 15-30%. Late presentation is associated with poorer outcomes and worse rehabilitation than in those patients who present early and are followed prior to commencing dialysis. In addition, importantly, late presentation does not allow for the implementation of preventative strategies which may postpone or even avert the need for dialysis in upwards of 80% of patients. This is of major benefit to the patients themselves but in addition represents a significant financial saving to the health economy. The SEHA health system in Abu Dhabi has a single unifying electronic patient record (Malaffi). This is an extremely powerful tool. In 2012, we examined the renal function of all patients seen in the Emirate which allowed us to describe the epidemiology of chronic kidney disease and to look at the time taken from identification within primary care to presentation at a secondary care clinic. This analysis demonstrated that at all age groups the prevalence of CKD was higher in the local population when compared to a Western population with a significantly older age profile. In addition, the time taken from identification to presentation to a nephrologist was excessive at all stage of CKD. To address these issues an algorithm was introduced into Malaffi which automatically calculates an estimate of kidney function (eGFR) and in addition offers online, live, decision support concerning patient management, in particular medication and indications for referral. Patients are risk stratified for the likelihood of progression on the basis of their level of kidney function and the amount of protein in their urine. In addition a team of renal nurses was placed within primary care to act as an education resource for both patients and primary care staff and to ensure that patients navigated their way through the system in a timely manner. In the 16 months to May of 2015 we have identified 53,000 patients from primary care 20,000 of which with an eGFR and a urine protein estimation, 25% of which are at high risk of progressive decline in their renal function. Since introduction of the programme, we have demonstrated that treatment with an angiotensin converting enzyme inhibitor is associated with a 35% reduction in the likelihood of progression whilst treatment with certain types of Non-Steroidal Anti-Inflammatory Drug (NSAID) is associated with a 63% greater risk of progression. The introduction of the programme has seen a reduction in the use of NSAIDs in primary care of some 30% from peak. This programme demonstrated the power of the unified electronic patient record and its ability to assist in the management of chronic disease within primary care.

Biography

Dr Richards qualified in medicine at St Bartholomew's Hospital London in 1981; he undertook a period of research looking at the effects of cyclosporine-A on endothelial function at St Thomas' Hospital London prior to being appointed as Consultant Physician and Nephrologist at The Queen Elizabeth Hospital in Birmingham in 1992. During his time in Birmingham he was actively involved in the development of an electronic patient record with associated drug prescribing system. He went into medical management as Clinical Director, Divisional Director and finally Director of Operations in Birmingham before leaving the NHS and taking up the position of Medical Director for the UK and Ireland for Fresenius Medical Care in 2004. He moved to his current position as the CEO and CMO of SEHA Dialysis Services in 2012. He remains actively interested in clinical research particularly in relation to epidemiology and prevention of chronic kidney disease. He has published more than 50 papers in peer reviewed journals.

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