

A NEW LEASE OF LIFE- LIVING WITH DISABILITY AND RENAL DIALYSIS

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ABSTRACT

Based on the National Health Survey in 2010, almost half a million Singaporeans have diabetes, higher than the global prevalence. Diabetes is associated with a host of complications including heart disease, stroke, kidney failure, blindness and amputation.

In 2016, Singapore declared a 'war on diabetes' to decrease the incidence of diabetes and its complications. Beyond providing healthcare resources, tackling diabetes requires the shifting of mindsets and changing of habits.

The case study illustrates how biopsychosocial factors play a role in the optimal care of a diabetic patient. Self-management, acceptance, empowerment and health literacy are essential components to good diabetic care. System and support factors, as well as excellent communication with healthcare providers, are advocated as strategies to optimise outcome.

Keywords:

Diabetes mellitus; Chronic Kidney Disease; Amputation; Self-management, Empowerment; Health literacy

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INTRODUCTION

Mr Q is a 59-year old single male, pre-morbid independent in activities of daily living, community ambulant with a history of uncontrolled diabetes mellitus (DM) along with complications of osteomyelitis and chronic kidney disease (CKD). I was part of the family medicine team providing inpatient medical care for Mr Q, where he was transferred for rehabilitation following his below knee amputation (BKA).

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SITUATION AND BACKGROUND

Mr Q had a history of DM for the past twenty years with previous hospital admissions for scrotal abscess in 2009 and pneumonia in 2012. He was non-compliant with DM medication and follow up. In 2012, Mr Q was diagnosed by a renal physician with CKD stage 5 from DM nephropathy and hypercalcemia secondary to tertiary hyperparathyroidism. He was offered parathyroid surgery but declined and was started on Cinacalcet. His current admission was in 2017 for an infected foot ulcer which resulted in a fall. He was diagnosed with right first toe osteomyelitis with a chronic ulcer, complicated by cellulitis which did not respond to prolonged parental antibiotics and eventually needed a BKA. At the same time, his deteriorating renal function required dialysis. Mr Q had tunnelled dialysis catheter insertion to continue the haemodialysis while waiting for the arteriovenous fistula creation and maturation. His five months of hospitalisation resulted in significant functional decline.

Prior to October 2017 (Figure 1), despite the previous admissions, Mr Q was non-compliant with medications, indiscrete with dietary and fluid intake, with poor motivation and mistaken health beliefs.

ASSESSMENT

Biomedical issues

High risk of recurrent falls

Mr Q had two previous falls and continued to have a high risk of falls due to his physical disability from BKA, visual impairment from right eye blindness since young (cause unknown). While awaiting for the gradual healing and moulding of his BKA stump, he ambulated with the help of a walking frame. He had a prosthesis fitted after that, but experienced phantom limb pain that was controlled with pregabalin.

Suboptimal chronic disease management and preventive care

For the past eight years, Mr Q defaulted on his chronic disease management, resulting in multiple complications. He was not up-to-date with his vaccinations. Also, Mr Q continued smoking ten cigarettes per day and consuming beer two to three times a week.

End Stage Renal Disease

Our medical team discussed the options of renal transplant and haemodialysis with the patient in consultation with the renal physician. Mr Q was not a suitable candidate for peritoneal dialysis due to his poor eyesight and lack of a caregiver. He was also not eligible for renal transplantation due to the lack of

willing living donors and poor social support. Thus, long-term haemodialysis was decided upon as the primary strategy.

Psychosocial issues

Adverse social circumstances

Mr Q has six brothers and four sisters, but they seldom keep in touch and only meet up annually for Chinese New Year. They are unable to care for him physically and financially. Previously Mr Q was staying at a friend's house but now is unable to continue this living arrangement due to his friend passing away.

Errant health beliefs

Even though Mr Q was warned of the impending need of dialysis many months prior, he defaulted follow-up and medication, hoping that the prognosis given by the doctors would not actualise. However, after multiple inpatient counselling sessions, he was eventually cognisant that his CKD is at a late stage and thus irreversible.

RECOMMENDATIONS, RESOURCES, RESPONSIBILITY AND RELATIONSHIP

Optimising DM control with an integrated approach

During this hospitalisation, Mr Q received intensive education and counselling for his diabetes and chronic diseases. He was instructed on appropriate foot care, and the importance of home blood glucose monitoring, medication adherence and regular follow up. I ensured appropriate goal setting and provided counselling for problem-solving coping strategies to pre-empt potential problems like sick days and acute illness. He received pneumococcal, influenza and hepatitis B vaccinations and agreed to smoking cessation and alcohol abstinence.

The key to successful DM management lies in the appropriate and coordinated care from healthcare providers together with effective patient education.^{1,2} After our multidisciplinary team optimised DM control, we co-managed Mr Q's case with the renal physician. His renal function was closely monitored and planned for the creation of an arteriovenous fistula in preparation for regular haemodialysis.

Mr Q's medications are listed in Table 1.

Table 1: Mr Q's Medication List

Medication	Dosage
Erythropoietin	4000 units subcutaneous once in two weeks
Lanthanum Carbonate	500 mg three times a day
Cinacalcet	50 mg once in the morning
Renal vitamin	One tablet once in the morning
Ferrous fumarate	400 mg twice a day
Amlodipine	5mg once in the morning
Carvedilol	12.5 mg twice a day
Atorvastatin	10 mg once at night
Pregabalin	25 mg once at night
Lactulose	20 mls twice a day
Sennosides	Two tablets once at night

Self-management and acceptance

Advocating acceptance and self-management have been shown to help improve health outcomes in chronic disease.^{3,4} I adopted the Motivational Interviewing Technique to educate Mr Q on the importance of adherence to dietary and fluid restrictions (low sodium, potassium and phosphate). He was taught to calculate dry body weight, weigh himself regularly, titrate his medications according to his symptoms and return to the hospital if unwell.

Maximising progress of rehabilitation

Through his daily physiotherapy and occupational therapy sessions, Mr Q showed progressive improvement in performing his basic Activities of Daily Living (ADLs) and instrumental ADLs. Thus, he was deemed suitable to operate a motorised wheelchair which was purchased from the Assistive Technology Fund.⁵ This encounter gave him hope as he looked forward to regaining his independence with the mobility aid. He made good progress, given his mental and emotional resilience.

Supporting independence and community living

Despite having to live with a physical disability, Mr Q was still keen on independent community living. He was offered two housing options: a sheltered home or a senior group home. He opted for the Care Corner Senior Group Home⁶ after viewing the premise with the occupational therapist and Medical Social Worker (MSW).

The MSW also arranged for interim dialysis at a private dialysis centre until Mr Q was granted a place at a subsidised dialysis centre under NKE, as well as organised outpatient physiotherapy and occupational therapy sessions for him.

Prior application for early withdrawal of CPF based on medical grounds initiated in Dec 2017 was approved, which helped his financial situation.

Ideas, concerns and expectations

Mr Q values independence and mobility; he finds meaning in being able to carry out daily tasks, such as driving his motorised wheelchair around to visit his friends, buying food and shopping. He is content with his current accommodation, medical and financial arrangements. I encouraged him to engage in appropriate activities and enlarge his social network. He shared with me that he values this new lease of life, having gone through this challenging hospitalisation.

DISCUSSION

Role of the Family Physician

Counsellor and Friend

Mr Q adopted denial as a form of a coping mechanism when he was informed of his advanced CKD, and chose to remain oblivious to the harmful effect of uncontrolled diabetes. The lack of family support and lack of financial independence aggravated the situation. He had little to live for except for the occasional indulgence in smoking and drinking beer. These social situations caused Mr Q to feel resigned to his worsening health and its eventual poor outcome.

Together with my medical team, I was able to help him come to terms with his illness, accept his medical condition, its complications, and how to manage all of this.

Patient-centric and holistic care

Initially, Mr Q was suffering from adjustment disorder, but he quickly recovered after experiencing the dedicated attention from our multidisciplinary team. I encouraged him to reconnect with his old friends with whom he used to spend time before the admission. The MSW also engaged the Care Corner Senior Activities Centre⁶ to ensure that he remained supported upon return to the community.

LEARNING FROM CURRENT EVIDENCE

Optimising DM control

Barriers to optimal DM control

(i) Suboptimal self-care and education

The Diabetes Attitudes, Wishes and Needs second study (DAWNTM) is a cross-national benchmarking of diabetes-related psychological outcomes for people with diabetes. Self-care activities remain suboptimal in most countries and gaps exist around psychosocial and self-management education and support.

Despite the availability of educational programmes, many people with diabetes remain unaware and are not actively taking up educational opportunities.⁷ This compromises self-care. Nevertheless, in Singapore, new solutions are being raised to address this issue, such as telehealth.¹

(ii) System and support factors

Patient-identified factors that promote a positive patient provider relationship include openness to dialogue, an ability to listen attentively, providing sufficient time for communication and rationalising treatment recommendations.

Family involvement plays a crucial role in the management of diabetes; little or no support is often associated with the lack of adherence to medication regimens and diabetes health care behaviours.

Poor coordination between organisations and healthcare professionals impedes optimal diabetes management.³

Recommendations to overcome barriers

(i) Knowledge, empowerment and health literacy

Knowledge, empowerment and health literacy are key recommendations to overcome the barriers of non-adherence. Patients with more knowledge can be flexible in their self-care behaviours to reach the target goals. The shift from rigid adherence to instructions to making informed choices that better suit individual life circumstances were liberating for patients. Feeling empowered to self-manage one's diabetes is associated with better concordance with self-care behaviours and increased quality of life and better treatment satisfaction.³

(ii) Advocating acceptance of diabetes condition

Low diabetes acceptance is associated with impaired self-care and glycaemic control. Acceptance-based treatments are gaining increasing relevance, particularly in the treatment of chronic diseases, suggesting that focusing on those patients who did not have complete acceptance may help to improve health outcomes.⁴ Motivational Interviewing has been shown to have promising results for dietary behaviours, with outcomes most favourable for weight management in type 2 DM.⁸

(iii) Peer support

Several studies have demonstrated the benefits of peer support by emphasising sustained behaviour change. Peer support programs can be used to supplement treatment to improve patient behaviours related to diabetes.⁹

(iv) Self-management Education and Support

Diabetes self-management education and support lay the foundation to help people with diabetes navigate their decisions and actions, and has been shown to improve health outcomes.²

CHRONIC KIDNEY DISEASE (CKD)

Importance of early intervention

CKD is often asymptomatic in its early stages, and only a small proportion of people progress to end-stage kidney disease. However, renal replacement therapy is a significant burden on patients, financially and otherwise.

Monitoring renal function is an important task, and Primary Care Physicians (PCP) are well placed to manage modifiable risk factors, particularly blood pressure and proteinuria. Timely referral for specialist nephrology opinion is essential.

People with CKD are five to ten times more likely to die prematurely, and the increased risk of death rises exponentially as kidney function worsens. The most attributable death is from cardiovascular disease, although cancer incidence is also increased.¹¹

DIABETIC FOOT ULCERS

Risk assessment of diabetic foot ulcers and quality of life

There has been a strong association with DM foot ulcers, end-stage renal disease and mortality. Studies have found that dialysis patients at high risk for foot ulceration or amputation were those with previous foot ulceration or amputation, peripheral arterial disease, coronary artery disease and DM (increasing with duration of disease).¹³⁻¹⁴ Identifying risk factors through DM foot screening are critical in primary care. Early intervention includes revascularisation for peripheral arterial disease in DM foot ulcer is an option to salvage the limb.

There are simple risk factors that are easily measured at the clinic visit. Size of the wound, the age of the wound, and the grade of the wound are all predictors for the failure of a neuropathic foot ulcer to heal. These help to characterise the wounds that will do well with medical therapy and those that will not.¹⁵

Assessing the health-related quality of life (HRQOL) provides an opportunity to address specific physical or mental health concerns of patients.¹⁶ Patients with diabetic foot ulcers often report low HRQOL.

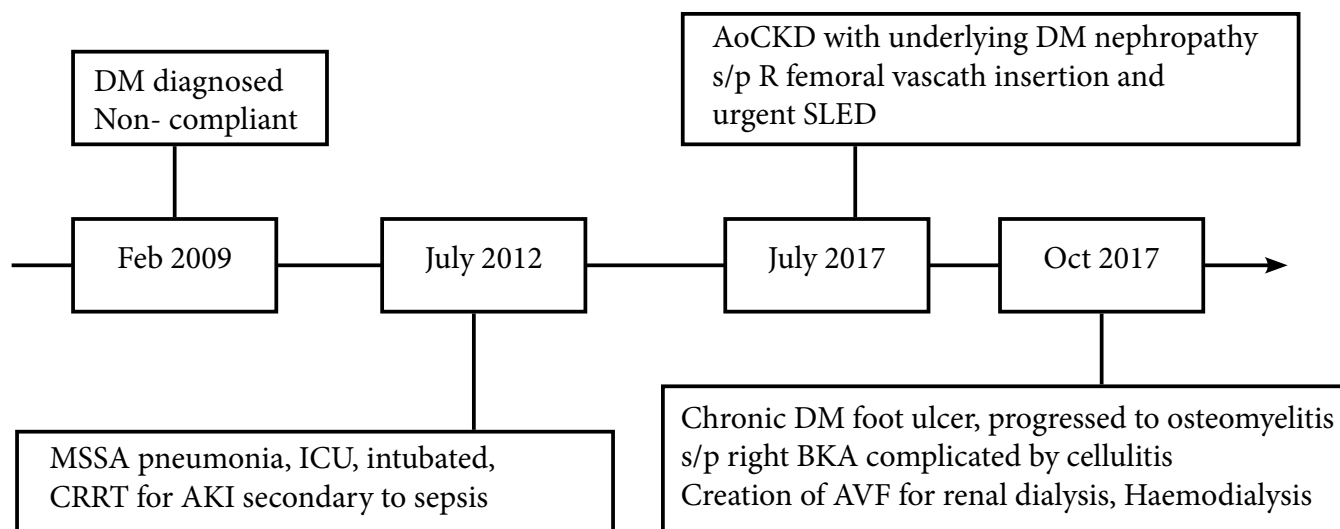
CONCLUSIONS

Diabetes is a chronic disease which demands a diabetic patient to make a multitude of daily self-management decisions and perform complex care activities. If well supported by the Family Physicians orchestrating the care, patients with diabetes can experience a good quality of life with minimal complications. Early identification of patients who are at risk of complications, timely interventions, providing adequate financial and psychosocial support are priority areas to improve healthcare outcomes for diabetic patients and their families.¹⁷⁻¹⁸

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Figure 1: Disease progression timeline of Mr Q



Abbreviation List:

DM	: Diabetes Mellitus
MSSA	: Methicillin Sensitive Staphylococcus Aureus
ICU	: Intensive Care Unit
CRRT	: Continuous Renal Replacement Therapy
AKI	: Acute Kidney Injury
AoCKD	: Acute on Chronic Kidney Disease
SLED	: Sustained Low Efficiency Dialysis
s/p BKA	: status post Below Knee Amputation
AVF	: Arteriovenous Fistula