

"I'D LIKE TO WRITE ANOTHER BOOK" – INTEGRATED PRIMARY CARE FOR AN AT-RISK ELDER (IPCARE) REQUIRING EXPEDITED PERITONEAL DIALYSIS FROM RAPID PROGRESSION OF END-STAGE RENAL FAILURE

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ABSTRACT

An 84-year-old gentleman with stage 5 chronic kidney disease (CKD) from diabetic nephropathy required community hospital step-down after repeated hospitalisations for fluid overload. Renal function decline outpaced appointments for initiation of peritonealdialysis (PD).

Biological and psychosocial barriers to dialysis initiation had to be tackled across settings in a collaborative, multi-disciplinary manner aligning various stakeholders. These included initial delirium that affected his mental capacity regarding placement and treatment, and concern regarding potential contraindications to PD.

At the patient level, family physicians (FPs) are well-placed to assess the mental capacity of patients, advocating and communicating their capacitated preferences to all stakeholders, collaborating with relevant subspecialists for dialysis initiation, and co-managing with community FP partners as medical experts in the anticipatory transitional care for patients with rapidly progressive end-stage renal failure (ESFR). The role of IPCARE as a systemic key enabler is also discussed.

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INTRODUCTION

Family physicians increasingly care for patients with ESRF due to an ageing population and the rising prevalence of diabetes. Initiation of dialysis is a further biological, psychological, and social transition for the patient and healthcare team. Such patients frequently present for acute care to their FPs and return for management of other co-morbidities after being discharged from hospital.

Integrated Primary Care for At-Risk Elders (IPCARE) can be a key enabler for community FPs in their role¹ as medical experts providing anticipatory transitional care for such patients, advocating for their capacitated preferences, and right-siting care, involving hospital stakeholders where

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needed. Networking within the community has enabled FP partners to help patients be mentally and socially engaged, improving their quality of life.

WHAT HAPPENED

Presenting Complaint

Mr M is an 84-year-old Chinese gentleman who was premorbidly ADL independent and homebound ambulant.

He was admitted to a tertiary hospital from 15-30 July 2019 with issues of:

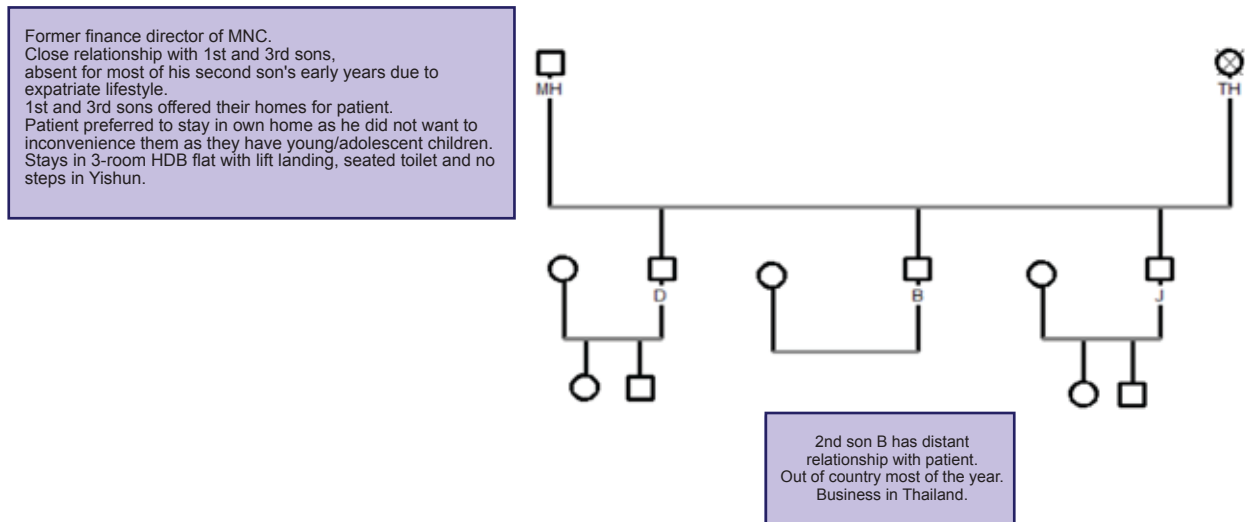
1. Fluid overload with uraemic acidosis secondary to fluid indiscretion requiring intravenous furosemide and oral sodium bicarbonate. A nephrology review deemed that there was no urgent need for dialysis and an appointment was made in December 2019 for consideration of PD given his cardiovascular comorbidities.
2. Functional decline to chair-bound.

He stepped down to our community hospital from 30 July 2019 to 14 September 2019 for reconditioning and subacute care. He was initially bedbound, in fluid overload, oxygen dependent, delirious, and unable to sustain prolonged conversation. He had no mental capacity regarding treatment or placement. Mrs B (his second son's wife) told our team to place him in a nursing home, as he was unable to self-care.

Significant Background

1. Diabetes mellitus complicated by:
 - a. Chronic kidney disease stage 5 since March 2019.
 - i. Multiple admissions to tertiary hospital for fluid overload requiring intravenous diuresis from April to June 2019.
 - b. Discharged home for self-care each time.
 - i. Ischaemic heart disease (IHD) and heart failure with mid-range ejection fraction (HFmREF). Echocardiography (April 2019) revealed ejection fraction of 47 percent. Myocardial perfusion imaging (May 2019) revealed moderate biventricular ischemia.
 - ii. Laparoscopic cholecystectomy for cholecystitis with prolonged operation time due to dense adhesions in 2014. There was initial concern that this would contraindicate PD.

Figure 1: Genogram



PATIENT'S REVELATION

In his lucid intervals, the patient would remark "I'd like to write another book". He presented our team with a signed first volume of his autobiography, sharing that he had a second volume to complete. His genogram is presented in Figure 1.

Gaining Insight: What are the issues

1. How do we approach decision-making in adults with fluctuating mental capacity?
2. How should we advise this patient regarding dialysis initiation and modality? How should we facilitate it if the decision is made to undergo dialysis?
3. How do we safely transition him back to community care?

Study the Management: How do we apply this in our clinical practice?

1. How do we approach decision-making in adults with fluctuating mental capacity?

Singapore's Mental Capacity Act states that a person lacks capacity in relation to a matter if at the material time he is unable to make a decision for himself in relation to the matter because of an impairment, or a disturbance in the functioning, of the mind or brain.^{2,3}

Fluctuating mental capacity⁴ is where, although patients may suffer from impaired mental capacity, based on medical knowledge they have a high likelihood of improvement over time once the underlying problem is treated or resolved. This occurs in conditions such as delirium. If it is not an emergency, physicians should defer capacity assessment and decision-making to a time when the patient is in the best possible state after medical optimisation. FPs can be medical

experts, assessing mental capacity, optimising patients, and advocating for deferred decision-making facilitating the elicitation of patients' capacitated preferences.

Mr M was initially hypoxic and deconditioned with hypervolemic hyponatremia. This contributed to initial delirium with fluctuating mental capacity. He was inattentive to questions and had difficulty expressing himself due to breathlessness. Despite this, his preferences were for initiation of dialysis and to be cared for at home, at odds with B's request for institutionalisation. The rest of the family were initially ambivalent, tending to concur with B as they viewed the patient as being unable to decide for himself. We communicated with the family via an elected spokesperson (his first son D) that the patient would likely regain decision-making capacity once he was medically optimised. Decision-making should be deferred till then. Judicious diuresis achieved normoxia and eunatremia with restoration of mental capacity. Sodium bicarbonate levels ceased with concurrence of his nephrologist given doubtful benefit at this point.

eGFR deteriorated from 11 to 8 ml/min/1.73m² despite euvolemia, evidenced by serum creatinine up trending from the 400s on admission, stabilising at 520 micromoles/L. Cognisant that renal function was deteriorating too rapidly for dialysis initiation in December 2019 with attendant uremia and hypoxia potentially impairing his mental capacity again, we collaborated with his nephrologist, cardiologist, and vascular surgeon, expediting appointments to assess the patient's suitability for PD. Once medically clear, all stakeholders opined that PD was not contraindicated, and we discussed with the patient regarding PD. Together with his nephrologist, the patient agreed that PD would improve his quality of life though not necessarily guaranteeing his survival.

His desire for PD and care in the community remained consistent. He was able to retain, weigh, understand, and communicate all relevant information to his nephrologist, our team, and his family. A family conference was arranged

whereby the patient shared his wish to be cared for at home as it was where he was most comfortable, especially to accomplish his writing goals in the last leg of his life. He was able to retain and share (what we briefed him prior) that he had logistical concerns regarding provision of PD in a nursing home. He believed that having a trained caregiver would enable PD to be provided at home as he was too frail to manage this independently. He also shared that haemodialysis (HD) would be too strenuous on his heart and time-consuming due to post-dialysis fatigue as he wished to be mentally alert and physically capable of writing the second volume of his autobiography.

2. How should we advise this patient regarding dialysis initiation and modality? How should we facilitate it if the decision is made to undergo dialysis?

Shared decision making (SDM) is the gold standard for patient-centred care. This is especially so in chronic diseases such as CKD where patient preferences are as equally important as medical facts in guiding treatment decisions, and this has been recognised internationally by the Kidney Disease Improving Global Outcomes (KDIGO).⁵ Self-administered surveys of Canadian nephrologists and FPs found that both viewed each other as valuable partners in the management of dialysis patients, and that communications and training required improvement amongst the two specialities. In the same study, patients displayed more confidence in the primary care delivered by their FPs than by nephrologists.⁶ Locally, qualitative research in a tertiary hospital revealed that patients were the final decision-makers in dialysis initiation, although their caregivers and doctors did have important roles to play.⁷ Further research could be considered in this area. FPs can communicate and collaborate with patients, caregivers, and nephrologists to arrive at a shared decision, taking into account their unique ideas, concerns, and expectations given their psychosocial circumstances that are frequently superimposed upon medical ambiguity.

For Mr M, IHD with HFmREF presented a barrier to HD initiation. Revascularisation would require coronary artery bypass grafting, a major surgery entailing a risk that the patient was not prepared to undergo. HD was thus relatively contraindicated due to potential cardiac dysrhythmias, more so than PD,⁸ taking into account Mr M's low heart rate variability.

Prospective studies regarding survival on HD versus PD remain inconclusive with limitations due to heterogeneity and biases.⁹⁻¹² Fatigue is frequent in HD patients¹³ and travelling time is an additional downside. These were some considerations that informed the final shared decision for PD for Mr M. A foreign domestic worker (FDW) was hired to provide him with PD, daily monitoring, and care. This afforded M more time at home to write his autobiography. Caregiver training was provided to the FDW and Mr M's son D at ward level, aided by continued outpatient by IPCARE and nephrology teams.

3. How do we safely transition him back to community care?

Transitional care encompasses a broad range of services and environments promoting the safe and timely passage of patients across different levels of healthcare and care settings.^{14,15} IPCARE is one such service functioning as a hub of support for patients and FPs, providing multidisciplinary services (home visits, wound dressings, and 24/7 telecare) and escalation to hospital specialist outpatient clinics for speciality opinion where needed.

The following issues were addressed by the IPCARE team and Mr M's neighbourhood FP:

- a. Worsening acidosis and renal function despite euvoemia: At his IPCARE clinic visit on 1 October 2019, Mr M was noted to have symptomatic uremic acidosis (his serum bicarbonate dipped to 11 mmol/L), poor appetite, fatigue, and functional decline. Relevant differentials such as anaemia, infection, electrolyte imbalance, and thyroid dysfunction were excluded. Cognisant that current evidence is unclear on the risks and benefits of aggressively treating metabolic acidosis with oral alkali,¹⁶ we consulted his nephrologist. A shared decision was made with all stakeholders for temporary remediation of his uremic acidosis by reintroduction of sodium bicarbonate, daily monitoring of weight and blood pressure by his helper and telemonitoring support.

Continued monitoring of serum bicarbonate by his FP with titration of oral bicarbonate doses achieved stabilisation of serum bicarbonate levels at 16-18 mmol/L by mid-October with consequent improvements in Mr M's appetite, energy levels, and ambulatory function. He improved from requiring contact guard assistance for activities of daily living (ADL) to supervision only. This optimised him for expedited PD catheter insertion, which was done on 6 November 2019 with PD urgently commenced thereafter. He achieved euvoemia and acidosis resolution by mid-November 2019.

- b. Safety of home environment for PD initiation: A decantment and home visit was done on 8 October 2019 to assess Mr M's ability to cope at home, explore the environment's suitability for PD and transition care to his FP (refer to **Figures 2a/2b**). His home was deemed safe and clean for PD. The FDW was competent with his care and medication administration. Mr M was working on his second book when we visited, and alert and ambulatory around his house. A senior activity centre (SAC) below his house was noted (refer to **Figure 3**), which he had hitherto not visited. We linked him up with the staff at the SAC, where to date he continues to write and exercise daily.



Figure 2a: Home environment amenable for peritoneal dialysis, with a weighing machine to monitor Mr M's weight daily



Figure 2b: Living room with adequate space for reading, typing, and answering emails

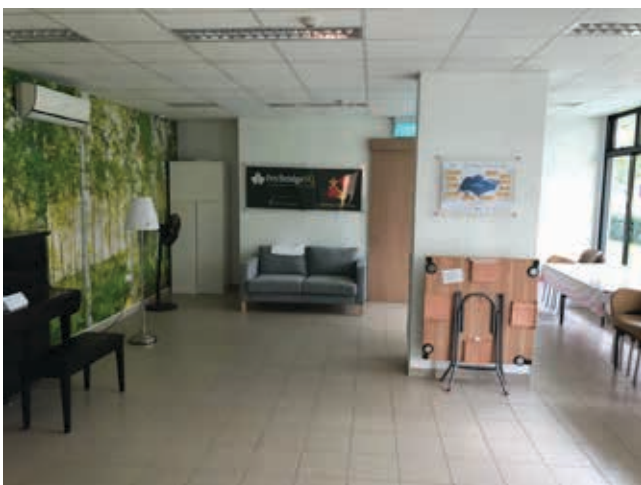


Figure 3: The senior activity centre below Mr M's house where he is able to write in air-conditioned comfort (table in corner)

CONCLUSION

End-stage renal failure will rise in parallel with diabetes in our ageing population. Dialysis initiation is a key biopsychosocial transition and stressor for patients. Safeguarding patient autonomy is important, especially where fluctuating mental capacity is expected to abate with medical optimisation. The above case illustrates how FPs are well-placed across settings as medical experts, collaborators, communicators, and advocates to achieve optimal and patient-centred outcomes. IPCARE can be a key enabler for FPs, functioning as a hub of support, collaborating with relevant hospital services, and performing home visits and telemonitoring as required.

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