https://doi.org/10.33591/sfp.48.6.uc2

THE CHAMELEON OF HOPE: THE ROLE OF COMMUNITY HOSPITALS FOR COMPLEX PATIENTS WITH RAPIDLY EVOLVING CARE NEEDS

Koh Jing Xuan, Dr Wong Peng Yong Andrew

ABSTRACT

An 87-year-old male, with a background of ischaemic heart disease, chronic kidney disease, hypertension, and hyperlipidaemia, was admitted for an acute right frontoparietal stroke, which progressed to recurrent cortical infarcts. He was transferred to the community hospital for step-down care and slow stream rehabilitation. Although his acute issues resolved, he continued to require a high level of nursing care. Eventually, the goal of care switched to palliative as his condition deteriorated. This case report highlights the importance of a versatile hospitalist team in managing rapid changes in care, particularly in complex cases with great difficulty fitting into a neat care plan.

Keywords: Stroke; Palliation; Discharge care planning

SFP2022; 48(6): 61-67

INTRODUCTION

Chronic non-communicable illnesses are commonplace among the elderly. Worldwide, the incidence of cardiovascular diseases, such as hypertension, diabetes mellitus, and hyperlipidaemia, is on an upward trend.[1] With Singapore's ageing population,[2] it is critical to understand the importance of control and prevention of complications of these "silent killers". Of note, strokes are one of the more common[3] complications in these patients with increased morbidity and mortality. Not only does it reduce the quality of life for patients, their family members and caregivers also have to cope with an increased burden of care. In this case report, we will discuss the challenges faced by a community hospital team in managing an elderly patient with multiple strokes and underlying comorbidities. Through this case, we hope to highlight the importance of versatility in managing his rapidly changing care requirements.

KOH JING XUAN
Medical Student
Lee Kong Chian School of Medicine, Nanyang Technological University

DR WONG PENG YONG ANDREW
Family Physician
Post-Acute & Continuing Care, SingHealth Community Hospitals

CASE PRESENTATION

Patient's Journey and Relevant Medical History

NCK, an 87-year-old retired lorry driver, was admitted to the restructured hospital for an acute right frontoparietal stroke. He subsequently suffered recurrent bilateral parietal cortical infarcts during his inpatient stay and was transferred to the community hospital (CH) for step-down care and slow stream rehabilitation while waiting for nursing home placement.

NCK had a significant past medical history of multiple cardiovascular conditions. These include chronic kidney disease stage 5 (CKD5) with an estimated glomerular filtration rate (eGFR) of 12 ml/min/1.73m^2. He also suffered from ischaemic heart disease (IHD) for which he had a percutaneous coronary intervention in 2010. This was complicated by an episode of non-ST-segment elevation myocardial infarction (NSTEMI) and fluid overload in May 2020. Moreover, NCK had previous lacunar strokes, hypertension, hyperlipidaemia, and a significant smoking history of 13 packs daily for many years. His medications include aspirin 100 mg once daily and atorvastatin 40 mg once nightly. He declined renal replacement therapy as he was a firm believer of traditional chinese medicine (TCM) and was poorly adherent to his medical appointments and medications.

In terms of NCK's social background, he was pre-morbidly homebound and ambulant with a rollator frame. He lived in a 4-room rental flat with his third son who was single and had stopped work for the past two years to assist with NCK's basic activities of daily living (bADLs). His other children were unable to care for him citing poor health conditions and financial constraints, leaving his third son to be the only available caregiver for NCK.

Clinical Assessment

NCK was bedbound, uncommunicative and on nasogastric tube feeding. His GCS was E4V1M3 and blood pressure was 140/95 mmHg with postural drop of 40 mmHg in the systolic component. There was a grade 3/6 ejection systolic murmur best heard over the left lower sternal edge with no radiation. Furthermore, bi-basal inspiration crepitation up to midzones of the posterior lung fields were heard, unaccompanied by pedal oedema.

The neurological examination was limited by NCK's poor cognition but there was hypertonia of his lower limbs, especially his hip abductors, without hyperreflexia.

His pupillary response to light was normal. Two stage 2 sacral pressure injuries were noted – a 1.8 x 2.1 cm right gluteal ulcer and a 3.2 x 1.8 cm left gluteal ulcer. Both were clean and minimally exudative.

NCK was heavily dependent on two persons for transfer, required assistance in all bADLs, and was unable to sit unsupported. Furthermore, he had decreased attention, severe oropharyngeal dysphagia, and cognitive-communicative disability. These were complications from his previous strokes.

Investigations

During NCK's stay in the restructured hospital, several investigations were performed. Cardiovascular panel revealed normal glycated haemoglobin (HbA1c) 5.5 percent [N: <7.5 percent], raised low density lipoprotein (LDL) 2.69 mmol/L [N: <2.1], and raised Pro Beta-Natriuretic Peptide (Pro-BNP) 10,377 pg/ml [N: <100]. An electrocardiogram (ECG) done revealed normal sinus rhythm, left ventricular hypertrophy, and poor R wave progression. A 2-dimension transthoracic echocardiography showed a reduced ejection fraction of 45-50 percent with multiple regional wall motion abnormalities. These findings signified poorly controlled hyperlipidaemia with established ischaemic cardiomyopathy, which predisposed to his recurrent strokes.

NCK's renal panel revealed raised serum Urea 44.0 mmol/L [N: 2.7-6.9], Sodium 153 mmol/L [N: 136-145], Potassium 5.3 mmol/L [N: 3.5-5.1], raised Creatinine 371 umol/L [N: 59-104], raised Phosphate 2.04 mmol/L [N: 0.94-1.50] with low CKD-EPI eGFR 12 ml/min/1.73m^2 [N: >60], and low serum Bicarbonate 13.3 mmol/L [N: 19.0-29.0]. These results showed significant uremic acidosis in keeping with stage 5 CKD.

Problems Identified

The community hospital team identified several issues with NCK's care.

First, NCK suffered severe complications from recurrent strokes. His fluctuating consciousness, major cognitive impairment, and severe oropharyngeal dysphagia rendered him to be of a high aspiration risk. He suffered pressure injuries from being bedbound and had a high risk of venous thromboembolism.

Second, he had a high risk of future atherosclerotic events, contributed by recurrent strokes, advanced kidney disease, and uncontrolled hyperlipidaemia. NCK's non-adherence to medical treatment made the control of these risk factors a particularly challenging task.

Lastly, NCK possessed high care nursing needs. He was maximally dependent on two persons for all his bADLs, and required regular nasogastric tube feeding, wound dressings, and frequent turning to manage his injuries. This was further compounded by the fact that his third son (who was his main caregiver) did not have an active source of income and other family members were not involved in care planning.

Treatments Instituted

NCK's care in the community hospital transited through several important phases.

The first phase was the prognostication of NCK's recovery by the inpatient team. Upon admission to the community hospital, the multidisciplinary team realised NCK's rehabilitation potential was limited. His medical prognosis was deemed guarded with a chance of succumbing to recurrent cardiovascular events or complications of immobility. He was likely to remain permanently bedbound, uncommunicative, and unsafe for oral feeding.

The second phase was the alignment of goals with NCK's family and this was an important step before executing subsequent care plans. With input from the multidisciplinary team, the community hospital doctors conducted open and regular conversations with NCK's son to achieve a shared understanding of the medical progress, prognosis, goals of care, and discharge care planning. Taking into consideration NCK's previously communicated care preferences and the family's wishes, NCK's son was agreeable to adopting a conservative approach to inpatient rehabilitation as he understood that it was difficult for his father to regain his premorbid independence.

Pertaining to the event of cardiovascular collapse, NCK's son agreed to not proceed with resuscitation, or any extraordinary life sustaining measures, given the low chance of success and the discomfort it they would bring. He agreed to minimise blood taking, setting intravenous lines, and, upon deterioration, avoid invasive investigations (e.g., cardiac catheterisation) and treatment for his father (e.g., surgery). These interventions were unlikely to have a significant positive impact on his final medical outcome. The therapeutic trust and a better understanding of NCK's disease trajectory forged greatly helped these discussions and NCK's son agreed to not escalate care beyond the community hospital.

Once these goals of care were agreed upon by all stakeholders, the multidisciplinary team came forward to provide their expertise in the third phase of care. The team included the doctors, nurses, therapists, and the social worker.

The doctors de-prescribed unnecessary medicine (e.g., aspirin, statins) and readjusted various symptomatic medicine (e.g., furosemide for fluid overload) while keeping a close eye on any possible foci of infection or discomfort (e.g., pressure wound). They also ensured adequate hydration within the limits of fluid restriction of 1.2 L per day. The emphasis was placed on comfort care instead of chasing after tight controls of cardiovascular targets.

In terms of continued monitoring for complications related to immobility, the nurses inspected pressure areas daily, instituted calve pumps, foam protectors to heels and the air mattress, and turned NCK every 2-3 hours. Great caution was exercised during his milk feeds, keeping a lookout for significant gastric aspirates and signs of aspiration. Existing gluteal pressure injuries were also cared for by applying Urgotul® dressing and ensuring overall hygiene – in particular, the cleanliness of the sacral and perineal areas, and oral care. These measures helped to reduce risk of gross aspiration, improve wound healing, and promote his dignity of living.

To facilitate ease of the nurses in assisting with bADLs, the physiotherapists and occupational therapists conducted regular passive ranging of NCK's joints to prevent contracture. They also recommended Botulinum injections to the hip adductors to reduce the difficulty of diaper change and showering. The speech therapist periodically reviewed for signs of speech or swallowing initiation and the continued indication for nasogastric feeding in the hope of reducing the burden of unnecessary feeding tubes. The option of percutaneous endoscopic gastrostomy was also discussed but the family was undecided. To cope with the increased energy requirements of wound healing and fluid restriction from NCK's established cardiorenal disease, the dietician recommended 220 ml of Nepro HP with 50 ml of water flush twice daily at 9am and 12pm, and 220 ml of Nepro LP with 100 ml of water flush twice daily at 3pm and 6pm.

Lastly, as the team was aware of the caregiver and financial constraints in NCK's care, the social worker was engaged and she revisited options of domestic helper and home caregiving services. NCK's son was aware that the wait for a nursing home might be long as many nursing homes were dealing with COVID-19 outbreaks. The social worker also offered financial assistance for nursing home subsidies on top of the other pre-existing grants for the disabled elderly, e.g., Pioneer Generation Disability Assistance Scheme (PGDAS).[4]

Outcomes and Follow-Up

Despite these interventions, NCK's condition deteriorated during the third week of admission. First, he had sporadic episodes of effortful breathing lasting about 2-3 hours that resolved spontaneously. A search for fluid overload, pneumonia, and deep vein thrombosis was unremarkable. Next, he had a few episodes of fever up to 38.5°C that lasted not more than 12 hours, without any clinically localising symptoms of infection. Empirical oral co-amoxiclav was instituted due to the high likelihood of aspiration and existing pressure injuries, albeit being haemodynamically stable. Chest x-rays performed showed new retrocardiac airspace opacities and urinary cultures returned negative.

During this time, in light of this new progression, the medical team revisited the goals of care with NCK's son and reaffirmed a fully palliative approach, as he felt that his father had "suffered much". NCK's son was deeply grateful and agreeable to inpatient hospice care. The multidisciplinary team continued to provide psychological support to NCK's son, especially monitoring for caregiver guilt whilst tapping on their expertise to help NCK.

During the terminal phase, NCK had recurrent oral bleeding, increased secretions, effortful breathing, and recurrent fever, despite being hemodynamically stable. The medical team gradually tapered off nasogastric tube feeds and adopted a low threshold of starting regular subcutaneous fentanyl and hyoscine infusions. To maximise comfort, the team coordinated with the nursing staff to execute gentle oral suctioning, maintain hygiene, and tepid sponging. At the time of care, due to the COVID-19 pandemic, the visitor policy was limited to two persons and extended family had to request for their presence in special circumstances. The team sought special approval on compassionate grounds to allow up to five persons in a single room with prior antigen rapid test and necessary personal protective equipment. Seven family members took turns to be with NCK and were grateful for the opportunity.

Eventually, NCK passed on peacefully and last rites were instituted based on his religious beliefs. The social worker continued to follow up with the family during the bereavement period.

DISCUSSION

Gaining Insight: What are the Issues?

This case raised several issues:

1. How do we approach cognitive impairment in a post-stroke patient?
2. How can we approach decision-making in a cognitively impaired and uncommunicative patient?
3. How can being in a community hospital facilitate the palliative process?
4. How is patient care affected in a pandemic?

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

1. How do we approach cognitive impairment in a post-stroke patient?

Post-stroke cognitive impairment is a common phenomenon with an approximate prevalence of 30 percent.[5-7] The importance of being able to identify stroke patients at risk of cognitive impairment lies in the potential for early preparation for treatment and preventive strategies. Established risk factors include old age, low education level, previous strokes, location and extent of stroke, pre-

existing cognitive decline, and vascular risk factors such as hypertension, diabetes mellitus, hyperlipidaemia, and smoking.[5-8]

The presence of cognitive impairment post-stroke denotes a worse prognosis for patients. Not only does post-stroke cognitive impairment predict poor survival, it is also associated with increased dependency and poor function.[10-11] While there has been no unequivocally efficacious treatment for post-stroke cognitive impairment thus far,[12] both non-pharmacological and pharmacological aspects play a role. Lifestyle factors such as smoking cessation, moderate alcohol intake, healthy diet, and physical activity are encouraged. In particular, aerobic exercise has shown to have a positive impact on post-stroke cognitive impairment recovery.[13] As for pharmacological management, controlling cardiovascular risk factors such as hypertension appears to decrease the risk of post-stroke cognitive impairment. In addition, treatment options used in Alzheimer's dementia, such as cholinesterase inhibitors and memantine, may have some benefit.[7-9] For instance, cholinesterase inhibitors have been found to maintain a stable pattern of improved cognitive function without the increased risk of side effects.[12]

2. How can we approach decision-making in a cognitively impaired and uncommunicative patient?

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.[14] In many cases, patients may suffer from fluctuating mental capacity that can improve once the underlying cause is treated or resolved. This occurs in conditions such as delirium. However, in this case, NCK's major cognitive impairment and communication disability were secondary to multiple cortical infarctions that were unlikely to resolve. As such, the option for medical optimisation and advocating for deferred decision-making would not make sense.

In cases such as NCK, having an advance medical directive (AMD)[15] that legally determines one's preference for extraordinary life-sustaining treatment would greatly help guide the extent of medical care. Unfortunately, NCK did not have an existing AMD. Most physicians would then turn to surrogate decision makers, identified through standardised relationship hierarchies, to advocate for incapacitated patients. In fact, one study found that surrogate decision making accurately predicted patients' treatment preferences approximately 68 percent of the time.[16] In order to come to a shared decision for NCK, open and regular conversations between the CH multi-disciplinary team and NCK's son were conducted. This helped to bridge the knowledge gap between stakeholders and facilitated the decision-making process. This was particularly important as it has been shown that disagreements between the surrogate's decision and what patients truly prefer likely stems from falsely high expectations of success rates for life-saving interventions.[17] Bridging the knowledge gap would thus have helped NCK's son make a more appropriate decision. After also considering With regards to surrogate decision-making for patients without mental capacity, there are several approaches to consider. The simplest would be that of previously documented and discussed advance care planning (ACP) or AMD. ACP is a mechanism for a person to articulate their preference regarding future care in the event where mental capacity is lost. If ACP and AMD have been previously performed and documented, medical decisions such as extent of care would have far less controversies and confusion. In the absence of such previous discussions, surrogate decision-making would then fall largely into two opposing principles: substituted judgement standard and best interest standard. In the substituted judgement standard, the patient's previously held values, beliefs, and preferences are used to inform the current decision-making process. This is in accordance with the ideal of preserving the patient's autonomy as much as possible. Under the best interest standard, the ethical principle guiding surrogate decision-making is a focus on maximising current benefit to the patient. It essentially negates the years of prior autonomous living such that the decision made would be the same for any person in a similar situation. However, we must be aware of their respective limitations. For the substituted judgement standard, there is the assumption that the psychological continuity that renders one's identity stable is not in any way compromised with declining cognition. In cases such as severe dementia, which typically has a very long disease progression, the preferences of the patient may no longer be adequately addressed by previous values. On the other hand, the best interest standard, while useful in theory, is nearly impossible for surrogate decision makers to maintain full objectivity without being influenced by their own preferences and biases.[18]

3. How can being in a community hospital facilitate the palliative process?

This case report emphasises the importance of being adaptable and versatile when managing complex patients. Existing medical issues may deteriorate, and new complications could arise. Beyond the medical condition, every patient also comes with a unique set of complex comorbidities and varying levels of function and social support. Avoidance of adopting a purely medical algorithmic approach to complex patients is extremely important. The medical team in charge should be ready to adjust plans made in the best interest of the patients. Being in a CH allows the multi-disciplinary team to tap on a myriad of resources to quickly tweak plans according to a patient's progress.

One of the greatest challenges of palliative care is in facilitating acceptance by the patient's family members. Family physicians often form strong bonds with patients and their families, and this therapeutic relationship allows for acceptance of diagnosis, goals of care, and prognosis. The nature of a CH as generally a step-down subacute care for more stable patients[19] also means that more attention can be paid to medically complex patients such as NCK.

This allowed for more time and effort to engage in regular conversations with NCK's loved ones. Not only did this help with building the trust between the team and the patient's family, it also helped ease the grieving process. As seen above in NCK's case, each member of the multi-disciplinary team plays an important role in his care. Doctors, nurses, therapists, nutritionists, and social workers all play a unique role in preventing complications and improving the patient's condition holistically. The CH is well equipped to allow palliative patients to remain as comfortable as possible through the entire process.

4. How is patient care affected during a pandemic?

This case report also raises the difficulties facing patient care amidst a pandemic. In keeping with this, research has shown that during the start of COVID-19 pandemic, hospitalised patients, regardless of COVID status, reported a significant deterioration of the perception of healthcare quality as compared to before the pandemic.[20] With social distancing requirements limiting caregiver and family interaction with the medical team, this results in greater difficulty in establishing a trustworthy relationship and engaging in discussions regarding care. Limited interaction between NCK and his family members would also likely have had some adverse effects on the patient. Studies have shown that even while unconscious, interaction with familiar figures such as family or friends does have some impact on patients.[21] Additionally, social distancing rules limiting visitors to the wards may also negatively affect the patient's loved ones. Being able to see and experience the realities of deteriorating health allows families to more easily accept changes in the patient's condition. This could help the family members mentally prepare themselves for the eventual passing of the patient.

While it is clear that the pandemic has brought about more harm than good, it also presents a window of opportunity for novel ideas to improve the inpatient experience – some of which may even be useful post-pandemic. Virtual visitation and communication via technology-based solutions has proven itself to be of great use during this time of social-distancing. In fact, studies performed in the UK have shown that virtual visiting for patients in the intensive care unit (ICU) reduced patient psychological distress and helped with reorientation in patient with delirium.[22] The use of online platforms such as WhatsApp, Zoom, and FaceTime provided an opportunity to connect family members with the patients and medical team. While some family members reported that virtual connection could not replace their physical presence, they were generally happy to attend and exchange information virtually.[23] Particularly in end-of-life palliative cases such as NCK, virtual communication may prove to be even more of a challenge. It is recommended to conduct such conversations via multiuser videoconferencing. This can include multiple distanced family members, translators, longitudinal clinicians, and even pastoral care when appropriate.[24] Whilst the now endemic nature of COVID-19 has made such concerns less relevant, these novel interventions can still be adapted to other areas.

For instance, such strategies may be utilised for our foreign patients whose loved ones are abroad, or for patients with vulnerable family members for whom a trip to the hospital may be risky.

REFLECTIONS ON THE ROLES OF THE COMMUNITY HOSPITAL

The role of a community hospital is multifaceted. It acts as a bridge between hospital and home where medical goals across the different specialties can be consolidated, rehabilitation maximised, and psychosocial issues be surfaced and addressed. Especially in these times of constant adjustment to endemic COVID-19 with possible future restrictions, the community hospital serves as a step-down facility to coordinate safe discharge care planning, especially for patients whose family members run a high risk of caregiver burnout. Most importantly, community hospitals provide the expertise of managing most types of care – spanning rehabilitation, subacute, chronic sick and inpatient hospice care – particularly for patients with rapidly changing care needs like NCK.

Moreover, the community hospital setting provides an excellent opportunity for the mapping out of continuous care for patients into the community. Given the high prevalence of stroke of 7.6 percent among older adults[3] and increasing numbers of elderly patients having multiple comorbidities, it is pertinent for holistic care to ensure that as few patients as possible fall through the cracks and avoid unnecessary readmissions to the general hospitals or excessive healthcare utilisation.

CONCLUSION

This case report explores the many challenges behind managing a patient with severe post-stroke complications and a sudden turn of events. Although not all stroke patients suffer similarly, we hope to share that the community hospital is well equipped to manage patients with different care needs – many of these needs could rapidly present in a single patient. It is pertinent to recognise that the difficulties of caring for cognitively impaired patients go beyond medical conditions to include the many issues surrounding the patient's loved ones. Just like a chameleon that changes its appearance according to its environment and in the face of potential aversity, the versatile nature of the community hospital's services, coupled with its personal centred and holistic approach to patients' issues, could be the one of the solutions for sustainable care for such elders in the community.

REFERENCES

1. World Health Organization Global Status Report on Noncommunicable Diseases 2010. Geneva, Switzerland: World Health Organization; 2011.
2. Ageing Population [Internet]. Population.gov.sg. [Accessed 9 March 2022]. Available from: https://www.population.gov.sg/our-population/population-trends/ageing-population
3. Teh WL, Abdin E, Vaingankar JA, Seow E, Sagayadevan V, Shafie S, et al. Prevalence of stroke, risk factors, disability and care needs in older adults in Singapore: results from the WiSE study. BMJ Open. 2018 Mar 28;8(3):e020285. doi: 10.1136/bmjopen-2017-020285. PMID: 29599393; PMCID: PMC5875611.
4. Pioneer Generation Disability Assistance Scheme [Internet]. Agency for Integrated Care. [Accessed 2021 Oct 12]. Available from: https://www.aic.sg/financial-assistance/pioneer-generation-disability-assistance-scheme
5. Pohjasvaara T, Erkinjuntti T, Ylikoski R, Hietanen M, Vataja R, Kaste M. Clinical determinants of poststroke dementia. Stroke. 1998 Jan;29(1):75-81. doi: 10.1161/01.str.29.1.75. PMID: 9445332.
6. Hénon H, Durieu I, Guerouaou D, Lebert F, Pasquier F, Leys D. Poststroke dementia: incidence and relationship to prestroke cognitive decline. Neurology. 2001 Oct 9;57(7):1216-22. doi: 10.1212/wnl.57.7.1216. PMID: 11591838.
7. Kalaria RN, Akinyemi R, Ihara M. Stroke injury, cognitive impairment and vascular dementia. Biochim Biophys Acta. 2016 May;1862(5):915-25. doi: 10.1016/j.bbadis.2016.01.015. Epub 2016 Jan 22. PMID: 26806700; PMCID: PMC4827373.
8. Sun JH, Tan L, Yu JT. Post-stroke cognitive impairment: epidemiology, mechanisms and management. Ann Transl Med. 2014 Aug;2(8):80. doi: 10.3978/j.issn.2305-5839.2014.08.05. PMID: 25333055; PMCID: PMC4200648.
9. Teasell R, Hussein N, Saikaley Bsc M, Iruthayarajah J, Longval Bsc M. 5. Rehabilitation of cognitive impairment post stroke [Internet]. Ebrsr.com. [cited 2022 Apr 23]. Available from: http://www.ebrsr.com/sites/default/files/EBRSR percent20Handbook percent20Chapter percent205_Rehab percent20of percent20Cognitive percent20Impairment.pdf
10. Narasimhalu K, Ang S, De Silva DA, Wong MC, Chang HM, Chia KS, et al. The prognostic effects of poststroke cognitive impairment no dementia and domain-specific cognitive impairments in nondisabled ischemic stroke patients. Stroke. 2011 Apr;42(4):883-8. doi: 10.1161/STROKEAHA.110.594671. Epub 2011 Feb 17. PMID: 21330625.
11. Aam S, Einstad MS, Munthe-Kaas R, Lydersen S, Ihle-Hansen H, Knapskog AB, et al. Post-stroke Cognitive Impairment-Impact of Follow-Up Time and Stroke Subtype on Severity and Cognitive Profile: The Nor-COAST Study. Front Neurol. 2020 Jul 17;11:699. doi: 10.3389/fneur.2020.00699. PMID: 32765406; PMCID: PMC7379332.
12. Kim JO, Lee SJ, Pyo JS. Effect of acetylcholinesterase inhibitors on post-stroke cognitive impairment and vascular dementia: A meta-analysis. PLoS One. 2020 Feb 7;15(2):e0227820. doi: 10.1371/journal.pone.0227820. PMID: 32032361; PMCID: PMC7006920.
13. Abba MA, Olaleye OA, Hamzat TK. Effect of aerobic exercise on post-stroke cognitive function: a systematic review. Int J Ther Rehabil [Internet]. 2020;27(9):1–15. Available from: http://dx.doi.org/10.12968/ijtr.2018.0080
14. Singapore Statutes Online. Mental Capacity Act [Internet]. Singapore: Singapore Statutes Online, 2021 [Accessed 2022 Apr 17]. Available from: https://sso.agc.gov.sg/Act/ MCA2008
15. ADVANCE MEDICAL DIRECTIVE [Internet]. Ministry Of Health. [Accessed 17 April 2022]. Available from: https://www.moh.gov.sg/hpp/all-healthcare-professionals/guidelines/GuidelineDetails/advance-medical-directive
16. Shalowitz D, Garrett-Mayer E, Wendler D. The accuracy of surrogate decision makers: a systematic review. Arch Intern Med. 2006 Mar 13;166(5):493-7. doi: 10.1001/archinte.166.5.493. PMID: 16534034.
17. Toh HJ, Tan L, Sim LK, Low JA. Patient-Surrogate Agreement in Advance Care Planning: Who Are the Surrogates and Are They Making the Right Decisions? Ann Acad Med Singap. 2018 Oct;47(10):431-434. PMID: 30460972.
18. Wilkins JM. Narrative Interest Standard: A Novel Approach to Surrogate Decision-Making for People With Dementia. Gerontologist. 2018 Nov 3;58(6):1016-1020. doi: 10.1093/geront/gnx107. PMID: 29617766.
19. COMMUNITY HOSPITAL CARE: Handbook for Healthcare Professionals [Internet]. 2018 [Accessed 17 April 2022]. Available from: https://www.moh.gov.sg/docs/librariesprovider5/default-document-library/handbook-on-ch-care-for-healthcare-professionals-2nd-edition-200918-for.pdf
20. Lopez-Picazo JJ, Vidal-Abarca I, Beteta D, López-Ibáñez M, García-Vázquez E. Impact of the COVID-19 Pandemic on the Hospital: Inpatient's Perceived Quality in Spain. J Patient Exp. 2021 Mar 3;8:2374373521998625. doi: 10.1177/2374373521998625. PMID: 34179398; PMCID: PMC8205378.
21. Latifoglu F, Altintop ÇG, Akin AK, Ileri R, and Yazar MA. Analysis of Family/Nurse Affect to Unconscious Patients. 2019 Medical Technologies Congress (TIPTEKNO). 2019, pp. 1-4. doi: 10.1109/TIPTEKNO.2019.8895111.
22. Rose L, Yu L, Casey J, Cook A, Metaxa V, Pattison N, et al. Communication and Virtual Visiting for Families of Patients in Intensive Care during the COVID-19 Pandemic: A UK National Survey. Ann Am Thorac Soc. 2021 Oct;18(10):1685-1692. doi: 10.1513/AnnalsATS.202012-1500OC. PMID: 33617747; PMCID: PMC8522289.
23. Cadel L, Marcinow M, Sandercock J, Dowedoff P, Guilcher SJT, Maybee A, et al. A scoping review of patient engagement activities during COVID-19: More consultation, less partnership. PLoS One. 2021 Sep 29;16(9):e0257880. doi: 10.1371/journal.pone.0257880. PMID: 34587175; PMCID: PMC8480845.
24. Hart JL, Turnbull AE, Oppenheim IM, Courtright KR. Family-Centered Care During the COVID-19 Era. J Pain Symptom Manage. 2020 Aug;60(2):e93-e97. doi: 10.1016/j.jpainsymman.2020.04.017. Epub 2020 Apr 22. PMID: 32333961; PMCID: PMC7175858.

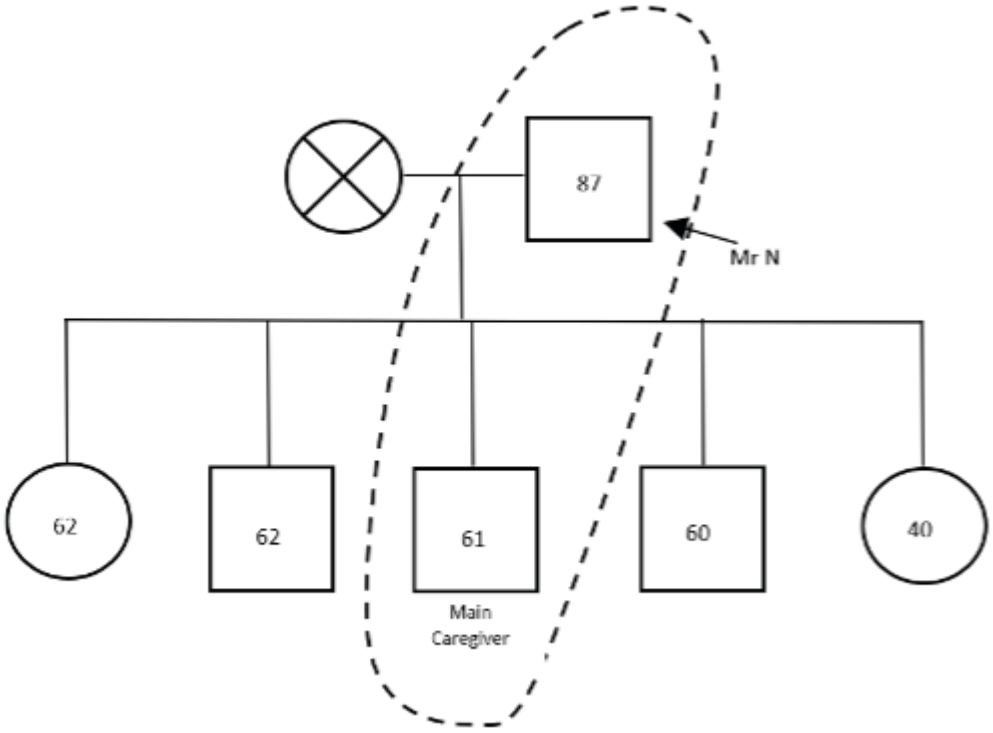

Figure 1. NCK's genogram

LEARNING POINTS

- **The multi-disciplinary teams in community hospitals are well-equipped to handle patients with complex comorbidities and high care requirements – including palliative patients.**
- **The importance of early identification of post-stroke cognitive impairment lies in the potential for prevention and early involvement of family members.**
- **In the absence of an AMD or ACP, being aware of the principles of surrogate decision-making – substituted judgement standard and best interest standard – can ease the difficulty of decision-making in cognitively impaired and uncommunicated patients.**
- **The decision to transit from curative to palliative intent is not an easy one to make. The therapeutic trust between the team and family members, as well as having regular open conversations, are key in facilitating family acceptance.**
- **The role of community hospitals in discharge planning and mapping out continuous care for patients is ever-growing and will become a cornerstone for Singapore's healthcare system.**