End-of-life clinical plan in a geriatric step-down hospital

ORIGINAL ARTICLE

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ABSTRACT

Objectives. This study evaluated the outcome of an end-of-life clinical plan for inpatients (EOL-CPi). This plan aimed to provide better care for dying older patients admitted to a geriatric step-down hospital.

Methods. 46 men and 82 women aged 65 to 104 (mean, 87.7) years who received care under the EOL-CPi between 4 June 2012 and 3 June 2014 were retrospectively reviewed.

Results. The mean duration of EOL-CPi activation was 4.15 days. The principal diagnosis of patients included advanced dementia (49.2%), active cancer (26.5%), neurodegenerative disease (11.7%), organ failure (8.6%), and stroke (4%). In the last 24 hours before death, 99.2% of patients were pain-free, not agitated, and without excessive secretions. In the same group of patients, compared with pre-EOL-CPi, post-EOL-CPi resulted in a significant reduction in use of intravenous antibiotics (87.5% vs. 55%, p<0.001), broad-spectrum antibiotics (61% vs. 36%, p<0.001), blood product transfusion (10% vs. 2.3%, p<0.05), physical restraints (28% vs. 9.3%, p<0.001), blood tests (82% vs. 14%, p<0.001), haemoglucostix monitoring (40% vs. 15.6%, p<0.001), oxygen use (8 vs. 6.7 L/min, p<0.001), the number of regular medications per patient (5.1 vs. 2.3, p<0.001), and the number of 'as needed' medications per patient (3.9 vs. 3.7, p=0.016). 92% family members were able to say goodbye to their dying relative; 95% had after-death procedures discussed and implemented; 95% of family members were given information about after-death procedures; 93% had family emotions handled.

Conclusion. The EOL-CPi was useful to guide management of dying older patients in a geriatric step-down hospital. A further prospective randomised control trial is warranted to determine the benefits of EOL-CPi.

Key words: Clinical protocols; Geriatric nursing; Terminal care

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INTRODUCTION

According to the Hong Kong 2011 census, 941 312 people were aged ≥65 years and constituted 13.3% of the total population.[1] The older population was projected to grow to 15% of the total population by mid-2014 and to 30% (2.43 million) in 2034.[2] Older people tend to have multiple co-morbidities, and end-of-life (EOL) issues are unavoidable. Patients with heart failure, Parkinson's disease, and advanced

dementia may experience distressing symptoms similar to patients dying of a terminal condition.[3-6] The number of frail older people with multiple irreversible chronic medical illnesses is set to rise.[7,8]

TWGHs Fung Yiu King Hospital (FYKH) is a geriatric step-down hospital with 110 medical and geriatric beds. It provides sub-acute, convalescence and rehabilitation services. It also accepts older patients directly from residential care homes who are receiving EOL care under the Hong Kong West Community Geriatric Assessment Team.[9,10] Internal audit showed that the mean age of patients admitted to FYKH was 85 years and the mortality was 15%. There is a need to enhance EOL care and to foster a change from a curative to a more palliative approach in managing EOL older patients.

The Liverpool Care Pathway (LCP) was developed in the United Kingdom to standardise the quality of care for patients dying in hospice and non-hospice settings.[11] It was based on the principle of an integrated care pathway that aims to facilitate distinct care through integrated multidisciplinary cooperation.[12] It emphasises comfort measures, anticipatory prescribing of medicines and discontinuation of inappropriate interventions in the care of a dying patient.

The LCP has been widely used.[13,14] Nonetheless, it has been criticised for hastening the death of some patients, possibly masking signs that the patient is improving, having potential financial implication, lack of evidence to support its use, and inadequate senior input in selection of cases.[15,16] In addition, the withdrawal of nutrition and hydration allowed in LCP has been regarded as a covert form of euthanasia, especially in the Catholic community.[17] The United Kingdom phased out the LCP after the Neuberger report of 'More Care, Less Pathway' in 2013.[18]

In response to the Neuberger report, the Leadership Alliance for the Care of Dying People (LACDP) published 5 priorities in the 'One Chance to Get it Right', namely recognition of dying, sensitive communication with patients and those important to them, involvement of patients and those important to them in decision making with their needs respected, and individualised care plan.[19]

The National Institute for Health and Care Excellence (NICE) guideline for EOL care aims to replace LCP.[20,21] It focuses on recognising when a person is dying, communication, shared decision-making, maintaining hydration, pharmacological interventions and anticipatory prescribing. It emphasises that a number of health experts, instead of just one doctor, should be involved in decisions regarding EOL care. It also stresses that people in their last days of life should be encouraged to drink if they still can. Clinical assisted hydration (CAH) via enteral or parenteral routes can be tried if there is no expression of preference for or against it by the patient, provided that the patient, family members or significant others fully understand the benefits and risks of CAH.

In order to improve the service to dying older patients at FYKH, a working group chaired by a consultant geriatrician consisting of senior and frontline ward nursing staff was formed in 2012 to review the concepts of LCP, with modifications made according to the local situation of FYKH and cultural preference of Chinese so as to develop a more individualised EOL clinical plan. The EOL clinical plan for inpatients (EOL-CPi) was established to improve patient and carer satisfaction, carer communication, as well as patient comfort in their last days of life. The EOL-CPi did not replace other inpatient medical and nursing documents for patient care. After the Neuberger report, the working group held regular review meetings to update the clinical plan so as to address the flaws of LCP and incorporate suggestions of the LACDP's 5 priorities and the NICE guideline.

EOL-CPi would only be activated in patients who were facing imminent death as judged by the geriatrician-led multidisciplinary team when all treatments were considered futile. In addition, patients, family members or significant others had agreed the 'do not attempt cardiopulmonary resuscitation' order and a palliative approach to patient care, with the primary aim of comfort care. As older people facing EOL issues generally have multiple symptoms, all patients undergo a comprehensive geriatric assessment by the multidisciplinary team.[22] EOL-CPi was a multidisciplinary decision, formally initiated by the medical officer and endorsed by the in-charge geriatrician. The goals selected for implementation and the corresponding success

criteria are shown in the **Table**. In EOL-CPi, whether to continue nutrition and hydration was entirely the clinical decision of the in-charge medical team after discussing with family members or significant others.

Before implementation, the EOL-CPi template was distributed to frontline medical and nursing staff for feedback, and revisions were made. It was the first time the step-down geriatric ward used the EOL-CPi; education sessions were organised with the assistance of a local palliative care team to brief ward staff about the objectives, entry criteria, and procedures of EOL-CPi. A lead nurse who was a member of the working group was assigned in each ward to provide on-site supervision to frontline staff. Guidelines were available in-ward for reference. The EOL-CPi programme began on 4 June 2012. The working group believed it was necessary to examine the values of EOL-CPi in enhancing EOL care in older patients.

This study aimed to evaluate the outcome of EOL-CPi in terms of its ability to enhance EOL care for dying older patients.

METHODS

This study protocol was approved by the Institutional Review Board of the University of Hong Kong/ Hospital Authority Hong Kong West Cluster. 46 men and 82 women aged 65 to 104 (mean, 87.7) years who received care under the EOL-CPi in the FYKH medicine and geriatric ward between 4 June 2012 and 3 June 2014 were retrospectively reviewed.

Data were retrieved including demographics, principal diagnosis, number of diseases per person, Charlson Comorbidity Index, functional and mobility state, mode of feeding, continence state, duration of EOL-CPi, initial physical symptoms, symptom control in the last 24 hours, and care after death.[23] Pre- and post-EOL-CPi in the same group of patients were compared in terms of the use of oxygen, blood tests, blood product transfusion, physical restraints, haemoglucostix monitoring, intravenous or subcutaneous administration of fluid or antibiotics, and regular or 'as needed' medications. Whether family members were able to say goodbye at the last moment of their relative's life was also noted.

Continuous valuables were expressed as mean±standard deviation (SD). Pre- and post-EOL-CPi in the same group of patients was compared using the paired t-test or independent t-test for continuous variables and the Chi-squared test for categorical variables. Statistical significance was inferred by a 2-tailed $p<0.05$.

RESULTS

The mean length of stay in FYKH was 16.1 (SD, 13.9; range, 1-66) days. The mean duration of EOL-CPi activation was 4.15 (SD, 6.5; range, 1-55) days. EOL-

Table
Goals and success criteria for end-of-life clinical plan for inpatients

Goals	Success criteria
1. Current medication assessed and non-essential medications discontinued	- Inappropriate or unnecessary medications discontinued - Appropriate 'as needed' medications given
2. Withdraw/withhold inappropriate interventions	- Withdraw/withhold unnecessary blood tests, blood product transfusion, high-flow oxygen, broad-spectrum antibiotics
3. Unnecessary nursing interventions discontinued	- Reduce frequent haemoglucostix monitoring - Avoidance of physical restraints - Reposition for comfort and pressure sore prevention only
4. Religious and spiritual needs assessed	- Patient or family members assessed for religious and spiritual needs
5. Plan of care is explained and discussed with patients or family members	- Patient or family aware of prognosis and understand the plan of care - 'Do not attempt cardiopulmonary resuscitation' order signed
6. Symptom assessment and treatment given appropriately	- Patient has satisfactory symptom control in the last 24 hours
7. Care at and after death	- Flexible visiting hours for family members - Family members able to say goodbye at the last moment - Hospital policy followed for patient belongings - Information provided to family members about the procedures after death - Family emotions acknowledged and handled

CPi was stopped in 7 (5%) patients who showed signs of recovery and survived. The remaining 121 (95%) patients eventually died.

The principal diagnosis of patients included advanced dementia (Abbreviated Mental Test score of 0/10) [n=63, 49.2%], active cancer (n=34, 26.5%), neurodegenerative disease (n=15, 11.7%), end-stage organ failure (n=11, 8.6%), and stroke (n=5, 4%).[24] The mean number of diseases per person was 4.5 (SD, 1.7), with a mean Charlson Comorbidity Index of 4.7 (SD, 2.4). Prior to admission, most patients lived in a residential care home (n=87, 68%), with poor mobility (55% bed-ridden, 22% chair-bound) and a severely impaired functional state (84% totally dependent in their activities of daily living). 87% had urinary incontinence, and 43% relied on enteral feeding.

The 6 most common initial physical symptoms at the moment of EOL-CPi activation were unconsciousness (92%), dyspnoea (72%), dysphagia (54%), confusion (49%), distress (32%), and respiratory secretions (30.5%), followed by catheterisation (7%), pain (4.7%), agitation (4.7%), nausea/vomiting (4%), and constipation (0.8%).

Symptom control in the last 24 hours was considered satisfactory; 99.2% of patients were free from pain, agitation, and excessive secretions. Compared with pre-EOL-CPi, post-EOL-CPi resulted in a significant reduction in use of intravenous antibiotics (87.5% vs. 55%, $p<0.001$), broad-spectrum antibiotics (61% vs. 36%, $p<0.001$), blood product transfusion (10% vs. 2.3%, $p<0,05$), physical restraints (28% vs. 9.3%, $p<0.001$), blood tests (82% vs. 14%, $p<0.001$), haemoglucostix monitoring (40% vs. 15.6%, $p<0.001$), oxygen use (8±4.9 vs. 6.7±4.8 L/min, $p<0.001$), the number of regular medications per patient (5.1±3.3 vs. 2.3±2.5, $p<0.001$), and the number of 'as needed' medications per patient (3.9±2.07 vs. 3.7±2.14, $p=0.016$).

All family members or significant others were allowed to have flexible visiting hours. Their religious and spiritual needs were assessed, and all were seen or contacted by the in-charge doctor to explain diagnosis, prognosis, and plan of care. All patients had a 'do not attempt cardiopulmonary resuscitation' order in place following discussion and agreement of the patient or family members. 111 (92%) of family members were able to say goodbye at the last moment to their dying relative. 95% had after-death procedures discussed and carried out; 100% had hospital policy followed for patient belongings; 95% were given information about after-death procedures; and 93% had family emotions acknowledged and handled.

DISCUSSION

Studies of EOL care for older patients, particularly non-cancer patients, are scarce among Asian countries. This study demonstrated the values of a clinical plan in enhancing EOL care for older Chinese patients in a geriatric step-down hospital. In contrast to most palliative care units, advanced dementia, organ failure, and stroke accounted for most of patients with an EOL-CPi, whereas cancers only contributed to 26.5% of cases. This suggested that the EOL-CPi might enhance the EOL care of these older patients with different end-stage illnesses. Moreover, it helped to bring about a change in the management approach and culture of the hospital from a more curative to a more palliative approach. The final days of older patients with advanced dementia can be very difficult to predict. Our study showed that an experienced clinical team can recognise the final days of these patients, as 95% of older patients eventually passed away after activation of the EOL-CPi.

In 2012, we developed the EOL-CPi by incorporating the LCP with an emphasis on individualised care plan. After the Neuberger report and phasing out of LCP, some centres performed an internal audit to determine whether the flaws in implementing LCP in the United Kingdom also existed in their practice; others modified or developed their EOL care plan by basing on the existing LCP programmes and taking into account the key factors for successful LCP implementation as well as the concerns raised.[25,26] We used the approach of revealing the EOL-CPi logistics and protocols regularly to ensure the issues of LCP were not present and that it was in line with LACDP's 5 priorities and the NICE recommendations for EOL care. We ensured that all patients underwent a multidisciplinary comprehensive geriatric assessment.

Feeding and hydration are common problems in EOL patients. In the EOL-CPi, patients still received

oral hydration and feeding whenever possible. If he or she could not tolerate an oral intake, we discussed with the patient, family members, or significant others the pros and cons of CAH that usually included enteral or parenteral hydration. If there was no objection, CAH would be given. Our local experience was that most family members or significant others did not object to continuing some form of CAH, even during the last few days of life. This explained why the use of a nasogastric tube and intravenous drip were not reduced after activation of the EOL-CPi. Hypodermoclysis, the subcutaneous infusion of fluids, is a safe, useful and easy CAH technique for dehydrated older patients.[27] In our study, all patients who required parenteral hydration were via an intravenous drip rather than hypodermoclysis. Education and promotion of hypodermoclysis is warranted to enhance its use in EOL patients.

After EOL-CPi, unnecessary medications and interventions were avoided in order to enhance the patient's comfort, with a marked reduction in use of intravenous antibiotics, broad-spectrum antibiotics, blood tests, blood product transfusions, regular medications, and 'as needed' medications. Painful yet unnecessary vital sign monitoring with haemoglucostix was reduced, as was the use of physical restraints.

The use of high-flow oxygen was reduced after commencing the EOL-CPi. High-flow oxygen can cause toxicity, dry-out of the nose and throat, and choking.[28] In EOL-CPi, doctors and nurses prescribed oxygen based on the patient's symptoms rather than purely on pulse oximetry readings, as patient comfort was paramount and avoidance of high-flow oxygen therapy was desirable in dying patients.

The EOL-CPi also enhanced the care for the carers. Often, the patient's psychosocial suffering could be relieved if they saw that their family's worry, anxiety and burden were addressed and cared for.[29] In patients receiving EOL-CPi, flexible visiting hours were offered to family members as a standard protocol. Spiritual, psychosocial, and bereavement needs of the patient and their family were assessed by nurses. Referral to social workers and chaplains was initiated if needed. Being able to say goodbye to family members and significant others at the last moment is one of the 'good death' elements for a dying patient.[30] Saying goodbye with a caring touch is also an important farewell ritual among Hong Kong Chinese.[31] Failure to do so might lead to feelings of guilt in some family members. In EOL-CPi, 92% of family members could say a final goodbye to their dying relative. Family members were provided with information about after-death procedures. This helped to reduce feelings of anxiety and helplessness at this critical moment.

There were limitations to the present study. Comparison was made between the same group of patients before and after EOL-CPi. The patients were at different stages of the disease trajectory and this might lead to bias. Change of some medical practices before and after the EOL-CPi was documented, but details of palliative strategies used were not, including measures to alleviate dyspnoea, the types of drugs given for comfort care, and the use of morphine in particular. Standardised symptom assessment tools were not used. This made interpretation of statistics and outcome difficult. As a retrospective study, data accuracy relies on good documentation. A prospective study with a control arm should have been used. A standardised process (such as Medical Research Council Framework[25]) for development of the EOL care programme was not used. It is not clear whether the results can be generalised. Nonetheless, they are applicable to other hospitals that care for frail older Chinese people with multiple medical illnesses.

CONCLUSION

The EOL-CPi is a useful guide to provide care to dying patients. Medication safety, clinical monitoring, and provision of nutrition and hydration were not jeopardised. To foster a change in management of dying older patients, more emphasis should be placed on comfort care instead of curative treatment, with a marked reduction in unnecessary interventions and investigations. A further prospective randomised controlled trial is warranted to determine the benefits of EOL-CPi. In addition, a focus group or questionnaire survey can be performed to examine the views of family members and ward staff regarding EOL-CPi.

ACKNOWLEDGEMENTS

We would like to thank all the nurses in TWGHs

Fung Yiu King hospital for helping to implement the end-of-life clinical plan for inpatients. In particular, we thank Ms MC Lam, Ms DYF Lo, Ms S Law, Ms A Kwan, and Mr HO Pak for data collection.

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