Patients with pre-existing life-limiting illness in the intensive care unit: a point prevalence study

Tania Elderkin†, Allison Bone, Neil R Orford and Matthew J Maiden; on behalf of The George Institute for Global Health and the Australian and New Zealand Intensive Care Society Clinical Trials Group

To the Editor: Recognising when someone is approaching the end of their life allows clinicians to develop treatment plans congruent with the patient's goals and values. Objective indicators of a life-limiting illness, such as the United Kingdom Gold Standards Framework[1] and the Supportive and Palliative Care Indicators Tool,[2] can help practitioners identify patients with a high likelihood of death in the following year.[3] An intensive care unit (ICU) typically provides treatments to patients with high acuity of reversible disease and may be asked (or sometimes expected) to treat patients with a pre-existing life-limiting illness. While the prevalence and outcomes of patients admitted to the ICU with chronic disease is described,[4] it is not known how often patients with a pre-existing life-limiting illness are admitted to an ICU in Australia and New Zealand.

We undertook a prospective, observational, cross-sectional study conducted under the auspices of the Australia and New Zealand Intensive Care Society Clinical Trials Group Point Prevalence Program.[5] All patients (aged ≥ 16 years) in participating ICUs on one of two designated days in 2015 were included. Life-limiting illness indicators were adapted from those described previously[1,2] and classified into subgroups of advanced cancer, chronic organ failure, and frailty/dementia (Online Appendix). Other data points collected were patient age, gender, severity of illness score (Acute Physiology and Chronic Health Evaluation

Table 1. Point prevalence of patients in the intensive care unit (ICU) with a pre-existing life-limiting illness in Australia and New Zealand (2015)

Characteristic	All patients in ICU point prevalence study	Pre-existing life-limiting illness			Life-limiting illness subgroups			
		No	Yes	*P*	Cancer	Frailty	Organ failure	*P*
Number of patients	682	504	178		36	62	80	
Age (years), median (IQR)	62 (47–72)	59 (44–71)	68 (59–76)	< 0.001	64 (56–72)	75 (64–80)	67 (58–72)	0.012
Male	393 (58%)	387 (57%)	107 (60%)	0.435	22 (61%)	41 (66%)	44 (55%)	0.402
APACHE II score, median (IQR)	17 (12–22)	16 (11–21)	20 (15–25)	< 0.001	17 (12–21)	20 (15–25)	21 (15–26)	0.012
Advanced care plan present	48 (7%)	19 (4%)	29 (16%)	< 0.001	3 (8%)	17 (27%)	9 (11%)	0.012
Outcomes								
ICU LOS (days), median (IQR)	5 (2–14)	6 (2–16)	5 (2–10)	0.344	4 (2–8)	4 (3–13)	5 (3–9)	0.433
Hospital LOS (days), median (IQR)	17 (9–32)	17 (9–33)	16 (8–29)	0.156	18 (6–31)	18 (9–29)	17 (8–29)	0.863
Inpatient at day 28	145 (21%)	117 (23%)	28 (16%)	0.036	7 (19%)	13 (21%)	8 (10%)	0.162
ICU mortality	48 (7.0%)	29 (5.8%)	19 (11%)	0.027	6 (17%)	6 (10%)	7 (9%)	0.421
Hospital mortality	76 (11%)	45 (8.9%)	31 (17%)	0.002	6 (17%)	11 (18%)	14 (18%)	0.991

APACHE = Acute Physiology and Chronic Health Evaluation; IQR = interquartile range; LOS = length of stay.

[APACHE] II), documented advanced care directive or treatment limitation on admission to the ICU, lengths of stay, and mortality (in ICU and hospital). ICU research nurse coordinators in each institution collected data and submitted them to the coordinating centre. Research ethics approval was obtained from each contributing centre and coordinated by the George Institute for Global Health.

There were 49 ICUs that contributed data on 682 patients, of which 178 (26%) had a pre-existing life-limiting illness (Table 1*)*. Patients with a life-limiting illness were older, had higher severity of illness scores, and a higher proportion died in hospital (17% *v* 9%). Mortality was similar for the cancer, frailty, and organ failure subgroups. An advanced care directive or treatment limitation was present for 29 patients with a life-limiting illness (16%): 8% (3/36) of those with cancer, 17% (17/62) of patients with frailty, and 11% (9/80) of patients with advanced chronic organ failure criteria.

We noted that a substantial proportion of adult patients admitted to an ICU in Australia and New Zealand had a pre-existing life-limiting illness of which they were likely to die within 12 months. Only 16% of these patients had evidence of advance care or treatment planning before ICU admission. While most patients (80%) with a life-limiting illness survived to leave hospital, their longer term outcomes are not known, nor if the treatment and care aligned with their goals and values. The health care costs of managing these patients in the ICU were not obtained. Further research is required to understand the utility of treating patients with a life-limiting illness in the ICU and the barriers to advanced care planning.

Acknowledgements: Tania Elderkin† died suddenly while leading this project. We remember her dedication to patient-centred care, clinical research and friendship († Deceased March 2019).

Competing interests

None declared.

Author details

Tania Elderkin†[1]
Allison Bone[1]
Neil R Orford[1,2,3]
Matthew J Maiden[1,4,5]

On behalf of The George Institute for Global Health and the Australian and New Zealand Intensive Care Society Clinical Trials Group

1 Intensive Care Unit, Barwon Health, Geelong, VIC, Australia.
2 School of Medicine, Deakin University, Geelong, VIC, Australia.
3 Australian and New Zealand Intensive Care Research Centre, Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia.
4 Intensive Care Unit, Royal Adelaide Hospital, Adelaide, SA, Australia.
5 Discipline of Acute Care Medicine, University of Adelaide, Adelaide, SA, Australia.

***Correspondence*:** matthewm@barwonhealth.org.au

References

1 The Gold Standards Framework. The GSF prognostic indicator guidance — the National GSF Centre's guidance for clinicians to support earlier recognition of patients nearing the end of life. https://www.goldstandardsframework.org.uk/cd-content/uploads/files/General%20Files/Prognostic%20Indicator%20Guidance%20October%202011.pdf (viewed Nov 2019).
2 Highet G, Crawford D, Murray SA, Boyd K. Development and evaluation of the Supportive and Palliative Care Indicators Tool (SPICT): A mixed-methods study. *BMJ Support Palliat Care* 2014; 4: 285-90.
3 Milnes S, Orford NR, Berkeley L, et al. A prospective observational study of prevalence and outcomes of patients with Gold Standard Framework criteria in a tertiary regional Australian Hospital. *BMJ Supportive Palliat Care* 2019; 9: 92-9.
4 Anstey M, Watts N, Orford N, et al. Does anyone ever expect to die? *Anaesth Intensive Care* 2017; 45: 466-8.
5 Thompson K, Hammond N, Eastwood G, et al. The Australian and New Zealand Intensive Care Society Clinical Trials Group point prevalence program, 2009–2016. *Crit Care Resusc* 2017; 19: 88-93.