

difference was seen in these two groups (pvalue; 0.154). Also no difference was seen in two groups (marginal and non-marginal) (Pvalue = 0.245). **Conclusions:** In this study, SIG was not a good predictor for liver transplantation outcome.

References

- 1) Shaked
A, Nones F, Olthoff KM, Lucey MR. Assessment of liver function: Pre and peritransplant evaluation. *Clin Chem* 1997; 43: 1539–1545.
- 2) Ali
Y, Abouelnaga S, Khalaf H, Kamel Y. Physical chemical approach versus traditional technique in analyzing blood gases and electrolytes during liver transplant surgery. *Transplantation Proceedings* 2010; 42: 861–864.
- 3) Dubin
A, Meneses MM, Masevicius FD, Moseinco MC, Daniela KDM, Ventrice E, et al. Comparison of three different methods of evaluation of metabolic acid–base disorder. *Crit Care Med* 2007; 35(27): 1264–1270.

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Ethics of end-of-life-care

A522

End of life care in haematology patients: a job for critical care outreach services?

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Introduction: Despite recent medical advances and improved survival, patients with haematological malignancies (HM) still have a high mortality, and end-of-life (EoL) care has become an integral part of their treatment.¹ Evidence suggests less palliative care involvement and limited advanced care planning in patients with HM, probably because of the unclear transition between curative and palliative phases of their disease.^{1,2} Critical Care Outreach Services (CCOS) have been shown to participate in more than 50 % of EoL planning as part of their everyday workload.³

Objectives: To evaluate the role and input of CCOS in EoL care of patients with HM.

Methods: We retrospectively reviewed the records of all patients with HM from January 2014 to October 2015 who were referred to CCOS in a London specialist hospital. Variables analysed included age, diagnosis, ICU admission, time spent by CCOS, interventions provided and in-hospital mortality.

Results: There were 145 patients who were reviewed on 257 different occasions. Their age ranged from 18 to 84 years (median 56) and their diagnoses are shown in Fig. 45.

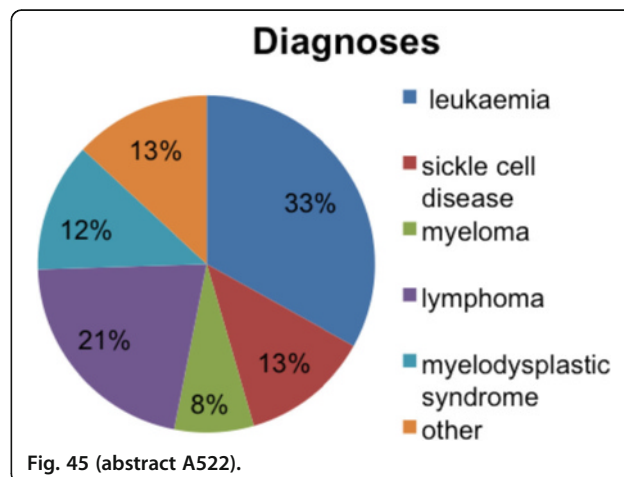
Of those, 16/145 (11 %) patients were identified as palliative; 81 % of them received EoL care on the ward. National Early Warning Scores at referral ranged from 2 to 10 (median 7). A total of 723 days was spent by CCOS in reviewing patients with HM, with 146 days (20 % of their clinical time) spent on palliative patients alone (median time 5.5d vs. 3d for non-palliative patients). Overall, in-hospital mortality among these patients was 81 %.

The services provided by CCOS to palliative patients were mainly facilitation of symptom control (67 %) and/or support of ward teams in making treatment limitation decisions (78 %). High Flow Nasal Canula Oxygen (HFNC) was initiated in 38 % of patients for symptom control, which was deemed successful in all but 2 patients.

Conclusions: A considerable part of the CCOS workload is spent on supporting the management of palliative haematology patients. Involvement in alleviating symptoms and initiating EoL discussions features strongly in the interventions requested by the ward teams. The significant use of HFNC therapy for symptom control that was observed in this population also warrants further investigation.

References

1. Howell DA et al. Haematological malignancy: are patients appropriately referred for specialist palliative and hospice care? A systematic review and meta-analysis of published data. *Palliative Medicine* 2010; 25: 630–41
2. National Institute for Clinical Excellence. Improving outcomes in haematological cancers: the manual. London: National Institute for Clinical Excellence. October 2003
3. Pattison N et al. Negotiating Transitions: Involvement of Critical Care Outreach Teams in End-of-Life Decision Making. *Am J Crit Care* 2015; 24: 232–40



A523

Contact with death, ethical decisions, and communication of bad news in intensive care and palliative units: results from a mixed-methods study

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Introduction: Professionals working in intensive care and palliative units (ICUs/PCUs) care for patients with life-threatening diseases, make ethical decisions, and provide end-of-life care. However, while palliative care aims to reduce suffering, intensive care has a major focus on saving lives.

Objectives: To identify and compare the experiences of ICU and PCU healthcare professionals related to: contact with dying and death, making of ethical decisions and communication and delivery of bad news.

Methods: Mixed approach, combining quantitative (questionnaire on experiences in the work context) and qualitative ones (interviews with doctors and nurses). 10 ICU and 9 PCU participated in this study. 392 professionals completed the survey; 28 were interviewed. A descriptive quantitative analysis was performed; the chi-square test was used to analyse the association between variables (significance level of $p < .05$). Interviews were subject to content analysis.

Results: In the week prior to survey completion, more professionals working in ICUs reported a patient's death; this was not statistically significant. The experience most mentioned by the professionals of both types of units during interviews was caring for patients nearing death. In the week before completing the questionnaire, the most common ethical decision was palliative/terminal sedation; this was more, often in ICUs (27 % vs. 12 %; $p = .004$). In the day of questionnaire completion, the most frequent ethical decision was also palliative sedation. Though this decision was more frequent in ICU,

statistical significance was not reached ($p = .440$). The communication of the diagnosis/prognosis to the patient, either in the week before or in the day of questionnaire completion was more frequent in PCUs (45 % vs. 29 %, $p = .005$; 22 % vs. 12 %, $p = .026$, respectively). Communication about the diagnosis/prognosis with the family in the week before survey completion was held with equal frequency by professionals from both contexts (58 % of professionals). Although not reaching statistical significance ($p = .303$), more professionals from PCU proceeded to communication with family about the diagnosis and prognosis (32 % vs. 26 %) in the survey day. From the analysis of the interviews, it was denoted that it were mainly professionals of PCU who referred to the communication on the diagnosis/prognosis, both with the patient as with the family.

Conclusions: The workplace experiences in ICU and PCU are, despite some differences, guided by similarities. Caring for patients with life-threatening situations and imminent death and the need to make ethical decisions occur frequently in both contexts. The communication about the diagnosis/prognosis occurs more often in PCU. This highlights the need for integrating communication strategies of palliative care, in intensive care.

References

1. Curtis JR, Vincent JL. Ethics and end-of-life care on the adult intensive care unit. *Lancet*. 2010 Oct 16;376(9749):1347–53. Epub 2010 Oct 11.

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An opportunity for advance decision-making: pre-operative risk stratification for adverse ICU outcomes in elective surgical patients

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Introduction: Complex elective surgery is increasingly provided to an aging population with heightened risk for prolonged ICU stay or death. While risks of surgical and anaesthetic procedures are routinely discussed preoperatively in the process of obtaining informed consent, the patients' preferences in case of unfavourable ICU outcomes are rarely discussed and most critically ill patients do not have advance directives. If patients at risk of a prolonged ICU stay or death could be identified preoperatively, this would provide an opportunity to make their preferences known in a timely and adequate manner.

Objectives: To identify the predictive validity of routine pre-operative risk assessment for an unfavourable ICU course (ICU stay > 24 hours or death), and to assess the prevalence of advance directives in these patients.

Methods: Among all 13437 elective adult surgical cases seen in a tertiary university hospital's pre-operative anaesthesiology clinic in 2014, 1832 consecutive cases were drawn. Data were extracted from hospital and ICU databases, including patient demographics, pre-operative American Society of Anesthesiologists (ASA) classification, length of ICU stay, mortality and presence of advance directives. A receiver operating characteristic analysis was conducted to test the predictive validity of ASA for a) having an ICU stay > 24 h and b) dying in the ICU or afterwards. Optimal cut-offs were identified by maximum Youden's J statistic.

Results: Among 1832 patients, 937 (51 %) were male, median age was 63 years (interquartile range 49–74), planned procedures were mainly from General, Trauma, Cardiothoracic, Eye, Gynecological, Urological or ENT Surgery. Pre-operatively, patients were classified into ASA risk classes (15 %, 41 %, 40 % and 4 % into ASA 1–4, respectively). Postoperatively, 504 (28 %) patients were admitted to the ICU. Of these, 373 (74 %) had an ICU LOS > 24 hours and 68 (13 %) died in the ICU or afterwards. Among patients with an ICU stay > 24 hours, presence of an AD was documented in 49 (15 %) and power of attorney for a legal proxy in 71 (22 %). Pre-operative ASA classification predicted an ICU stay > 24 h with an area under the curve (AUC) of 0.79, and death in the ICU or afterwards with an AUC

of 0.85. The optimal cut-off for both adverse outcomes was ASA ≥ 3 . For ICU stay > 24 h sensitivity was 0.85, specificity was 0.67; for death in or after ICU sensitivity was 0.93 and specificity was 0.58.

Conclusions: Preoperative ASA classification with a cut-off of ≥ 3 has a good predictive validity to identify the risk of prolonged ICU stay or death in patients undergoing elective surgery. Such risk stratification could be useful to initiate advance decision-making at the time of the pre-operative work-up of these patients and thus increase the prevalence of adequate ADs in the ICU.

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A525

Treatment-limiting-decisions in patients with severe traumatic brain injury in a Norwegian trauma hospital

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Introduction: Studies have shown variations in practice across hospitals regarding treatment-limitations and mortality for brain-injured patients.

Objectives: To study treatment-limitations and associated mortality in a Norwegian trauma hospital and documentation of ethical aspects such as presence of advanced directives, dialogue with families, multi-team discussions, reasons and considerations behind decisions, conflicts and involvement of clinical ethics committees.

Methods: A retrospective study of a 2-year cohort of severe head injured patients admitted 2011–12 to Oslo university hospital, Norway. Trauma registry data were combined with data from medical records. For data validation a definition guide for study variables was developed. Adults with abbreviated injury score head 4,5,6 were included ($n = 579$).

Results: Eighty-five % of all patients were admitted to ICU. Treatment limitations were identified in 17 % of cases (101 patients). Decisions were: Withholding organ support (12 cases), withholding surgery (52 cases), withdrawing intracranial pressure-targeted therapy (23 cases), DNR-orders (44 cases), no-escalation of treatment (19 cases) or withdrawing organ support (44 cases). For some patients initial decisions were changed (19 cases) or revoked (3 cases) along the dynamic treatment trajectory. Twenty-six patients with devastating brain injury progressed to brain death. No patients had advanced directives. Dialogue with family was documented in most cases (98). No major conflict between families and treatment team was identified and there was no involvement by CEC. Rationale behind decisions was identified as medical only in 80 % of cases. Treatment-limitations followed situations categorized as futile (59 cases) or "potentially inappropriate treatment" (42 cases) (1). The overall 30-day mortality was 16 % (35 % for patient with GCS < 9 and 7,5 % for patients with GCS > 8). Treatment-limitations were identified in 93 % of cases of in-hospital death. In-hospital mortality was 73 %, 30-day mortality 82 % and 2-year mortality 93 % in the treatment-limiting group ($n = 101$ patients, 25 patients were transferred to other facilities with limitations). In-hospital mortality was 1 %, 30-day mortality 2 % and 2-year mortality 8 % for patients without limitations made at the trauma hospital ($n = 478$).

Conclusions: Treatment limitations are common in patients with traumatic brain injury and were closely associated with in-hospital death. Withholding or withdrawing life-sustaining therapy in this early phase of hospitalization was primarily based on the medical situation and at the discretion of the physician. Whether patients' values and preferences were adequately addressed or had an impact on decisions (when appropriate) remains unclear.

References

1. Rubin, M. A. and J. Bonomo (2016). "Neurocritical Care Society Views on "Potentially Inappropriate Treatments in Intensive Care Units"." *American Journal of Respiratory and Critical Care Medicine* **193**(4): 466–467.