SWSC 2020 On-Demand Meeting Abstracts

3. ABDOMINAL SEPSIS PATIENTS HAVE A HIGH INCIDENCE OF CHRONIC CRITICAL ILLNESS WITH DISMAL LONG-TERM OUTCOMES

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Background: Over the past decade in-hospital mortality from sepsis has decreased substantially. Instead, more sepsis survivors are now progressing into chronic critical illness (CCI) and their long-term outcomes are poorly documented. Most of what is known about CCI comes from medical intensive care unit (ICU) patients requiring prolonged ventilation for ARDS and pneumonia. The purpose this study is to document the incidence of CCI and its associated long-term outcomes in surgical ICU patients treated for abdominal sepsis.

Methods: This is an analysis of 140 patients with abdominal sepsis over four years who were treated using evidence based ICU protocols and entered into a prospective surgical sepsis database that included serial blood biomarkers and one year follow-up. Data are presented as n (%), mean ± SEM, or median. Fisher's exact test and the Kruskal-Wallis test were used assess significance

Results: Of the 140 study patients, 68 (49%) were male with a median age of 63 years, 88 (63%) had primary infections (from the gastrointestinal tract in 70, pancreas in 9 and biliary tract in 9) and 52 (37%) had secondary infections due to procedural complications (anastomotic leak in 16, perforation in 17, abscess in 19). Forty one (29%) presented in septic shock and 64 (46%) underwent emergency surgery within 24 hrs. Only 9 (6%) patients died early (< 14 days), but a notably 51 (37%) developed CCI (defined as ICU days ≥14 days with persistent organ dysfunction) and the remaining 80 (57%) were classified as rapid recovery (RAP). At baseline, CCI compared to RAP patients were more likely to be male (61% vs 41%), older (median 66 vs 57 years), have a higher Charlson Comorbidity index (median 4 vs 2) and a higher APACHE II score (median 21 vs 14) [all $p < 0.05$]. CCI compared to RAP patients had blood biomarker evidence (see table) of more persistent pro-inflammation [reflected by higher day 14 interleukin-8 levels), immunosuppression (higher day 14 soluble programmed death-ligand 1 levels) and deranged metabolism (higher day 14 glucagon-like peptide 1 levels). CCI versus RAP cohorts (see table) had more secondary infections per patient and per 100 patient days. CCI also had much higher rates of stage III acute kidney injury (AKI) and multiple organ failure (MOF). The vast majority of CCI patients had poor discharge dispositions principally to long-term acute care facilities (LTACs) or skilled nursing facilities (SNFs). The CCI and RAP cohorts had similar good functional status at baseline by Zubrod Performance Status, but CCI cohort increased into range of severe disability at 3 month and only minimally improved by 6 and 12 months. Finally, 1 year mortality in the CCI cohort was very poor at 41%.

Conclusion: Surgical ICU patient treated for abdominal sepsis have a low rate of early death (6% < 14 days), but a high incidence of CCI (37%). Most CCI patients are discharged to non-home destinations with persistent severe functional disability and have a prohibitively high 1 year mortality. Improving these dismal long-term outcomes needs to be a future priority and novel interventions will be needed.

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Biomarkers and Outcomes	CCI 51 (37%)	RAP 80 (57%)	P value
Day 14 interleukin-8	80.9 ± 10.6	28.3 ± 5.4	<0.01
Day 14 soluble programmed death-ligand 1	157.8 ± 12.1	99.0 ± 8.3	<0.01
Day 14 glucagon-like peptide 1	126.6 ± 17.3	62.8 ± 10.1	<0.01
Secondary infections/patient, Secondary infections/100 patient days	1.5 ± 0.1 4.6 ± 0.4	0.4 ± 0.1 2.4 ± 0.9	<0.01 <0.01
Stage III AKI (KIDGO score) n (%)	14 (28%)	4 (5%)	<0.01
MOF (Denver score) n (%)	20 (39%)	1 (1%)	<0.01
Good discharge disposition n (%) (% to home/home care/rehab)	8 (16%) (0/75/25)	64 (80%) (36/58/6)	<0.01
Poor discharge disposition n (%) (% LTAC/SNF/other hospital/hospice/death)	43 (84%) (51/14/12/7/16)	16 (20%) (13/87/0/0/0)	<0.01
Mortality 30 day n (%) 1 year n (%)	9 (18%) 21 (41%)	1 (1%) 6 (8%)	<0.01 <0.01
Zubrod Performance Status Baseline 1 - highly functional 2 - mild disability 3 - moderate disability 4 - severe disability 5 - death 3 months 6 months 12 months	1.5 ± 0.2 3.8 ± 0.2 3.5 ± 0.2 3.4 ± 0.27	1.4 ± 0.1 1.8 ± 0.2 1.6 ± 0.2 1.5 ± 0.2	0.76 <0.01 <0.01 <0.01