The effect of early palliative care consultation for patient with traumatic brain injury on procedure utilization, length of stay and discharge location

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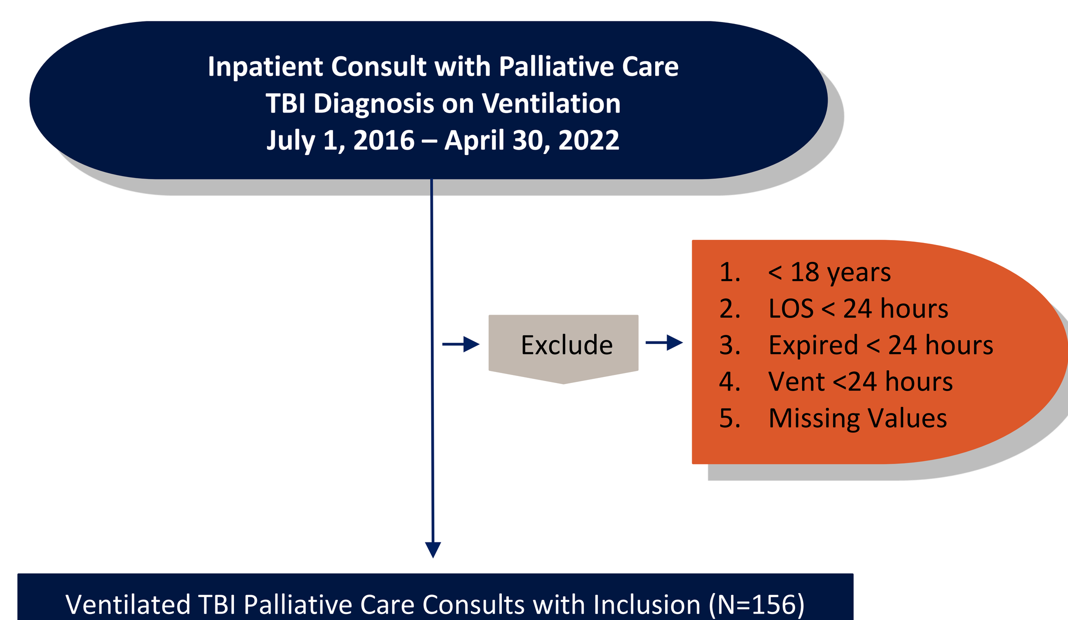
Background

Traumatic brain injury (TBI) has high a morbidity and mortality and can lead to a long-term disability. Survival of TBI can have a devastating effect on physical and social health. Burdens of TBI can extend beyond and reach the community, and TBI has a major economic impact. TBI patients with significant physical and cognitive impairment can lose ability to make decisions regarding treatment which can lead to significant emotional burden on the family or medical surrogate. To help with those issues palliative care consultation plays a significant role in the ICU in identifying psychosocial needs and goals of care discussion with the family. Palliative care consultation decreases economic impact by reduce length of hospital stay without affecting mortality. A recent study shows that most consults to palliative care for trauma patients usually happen within 24 hours of death. Another study shows that early consultation can decrease procedure utilization. No study shows the effect of early versus late palliative care consultation on procedure utilization and discharge location. We hypothesized that early consultation will decrease procedure utilization. Our study also will address the effect of palliative care consultation on LOS and discharge location.

Methods

We performed a retrospective study on prospectively collected trauma registry data of adult (≥18 years) palliative care patients with a TBI diagnosis admitted to an ACS verified level one trauma center in South Carolina, from July 1, 2016 to April 30, 2022. This research was determined to be exempt/excluded from Institutional Review Board (IRB) oversight. Deidentified date from the Trauma registry was reviewed to collect patient demographics, injury details, complications, and patient outcomes. The inclusion criteria were all adult (≥18 years) TBI patients with a palliative care consult who were admitted and received mechanical ventilation greater than 24 hours. The data was summarized and analyzed using Wilcoxon Signed-Rank Test, Chi Square, and Fisher's Exact Test, as appropriated in R software. For all tests, P values less than .05 were considered statistically significant. Injuries, causes, and procedures were coded using ICD10; additional diagnostic and injury severity scoring used the AIS system.



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Results

Table 1: Descriptive statistics of all adult (≥18 years) Ventilated TBI patients with an in-hospital consult of palliative care who had a hospital length of stay and ventilation > 24 hours, Inclusive years July 1, 2016 to April 30, 2022 (N=156)

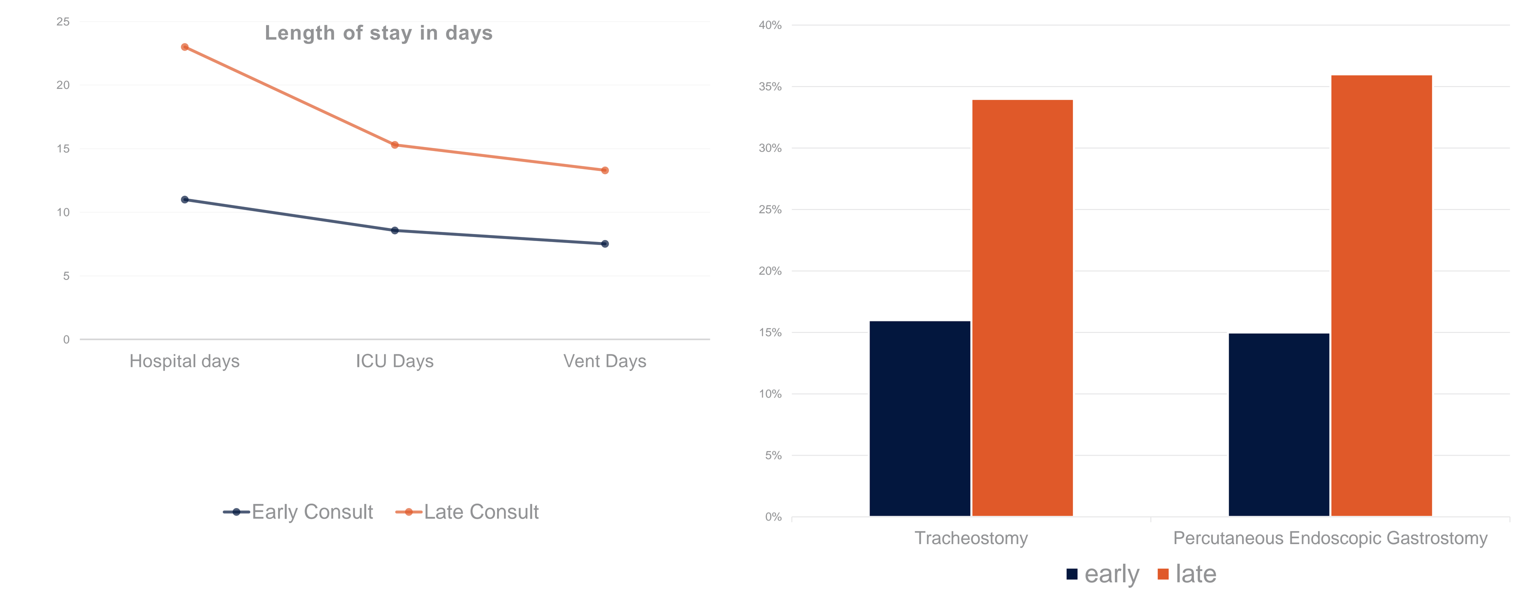
	N (%)	Mean, Median (SD) Min-Max
Palliative Care Consult Timing		
Early 1-4 days	77(49%)	
Late > 4 days	79(50%)	
Timing to Palliative Consult in Days	156	5,4[5].17-38
Age	156	62,67[19]18-96
Sex		
Male	100(64%)	
Female	56(35%)	
Race		
African American	20(12%)	
Caucasian	130(83%)	
Other	3(1%)	
Emergency Department GCS	154	6,3[4]3-15
13-15 Mild	40(25%)	
9-12 Moderate	15(9%)	
3-8 Severe	100(64%)	

Table 2: Wilcoxon Signed-Rank Test, Chi Square, and Fisher's Exact Test

	Early Consult 1-4 days 77(49%)	Late Consult >4 days 79(50%)	P Value
Age (mean, median [SD]iqr)	64,68[19]25	61,65[19]29	.25
Sex			
Male	44(57%)	56(70%)	.10
Female	33(42%)	23(29%)	.10
Race			
African American	7(9%)	13(16%)	.21
Caucasian	69(89%)	61(77%)	.16
Other	1(1%)	2(2%)	.62
Emergency Department GCS	6,3[4]6	7,5[5]11	.04
13-15 Mild	13(16%)	27(34%)	.01
9-12 Moderate	8(10%)	6(7%)	.77
3-8 Severe	56(72%)	44(55%)	.06
Hospital Length of Stay in Days	**11,6[17]7**	**23,16[24]15**	**<.01**
ICU Days	**8.57,7[7.08]6**	**15.3,14[9.01]8**	**<.01**
Vent Days	**7.52,5[7.29]6**	**13.3,11[8.74]9**	**<.01**
Discharge Disposition			
Expired	31(40%)	20(20%)	.06
Home Under Home Health	1(1%)	5(6%)	.20
Home or Self Care	0(0%)	6(7%)	.02
Outpatient Hospice Care	29(37%)	29(36%)	1
Inpatient Rehab	3(3%)	4(5%)	1
Long Term Care Hospital	3(3%)	9(11%)	.14
Skilled Nursing Facility	9(11%)	4(5%)	.22
Procedures			
Tracheostomy	**13(16%)**	**27(34%)**	**.02**
Percutaneous Endoscopic Gastrostomy	**12(15%)**	**29(36%)**	**<.01**

Discussion

Our results show that consulting palliative care within 4 days for patient with TBI may: reduce length of stays in the hospital/ICU, reduce ventilation days and reduce tracheostomy and PEG procedure utilization. Also, study shows that there is no statistically significant difference between discharge disposition, which may be secondary to low patient number. We include only patients whom had hospital LOS and ventilated more than 24 hours to allow for stabilization process or expired status due to severity of the illness. We chose day 4 as a cutoff to produce nearly equal numbers in the two groups. There are a couple of weakness in this study including: it was done in one center; the number of patients is small; and pediatric patients were excluded. We recommend further research, to include pediatric patients, and to conduct this study at multiple sites to improve generalizability.



Conclusion

In ventilated (>24 hours) adult (≥18 years) TBI patients who experience a late palliative care consult, there is a higher likelihood of longer stays in the hospital/ICU, more ventilation days and a higher likelihood of tracheostomy and PEG procedures.

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