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2022 Medical Research Day Posters

Oct 13th, 12:00 AM

Interhospital Transfers Do Not Affect Outcomes of Necrotizing Soft Tissue Infections

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Recommended Citation

Landreneau, Casey; Saravia, Rachel; Stobbs, Sarah; Schoen, Jonathan; and Smith, Alison, "Interhospital Transfers Do Not Affect Outcomes of Necrotizing Soft Tissue Infections" (2022). *Medical Research Day*. 47.

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Introduction

- Necrotizing soft tissue infection (NSTI) is a rapidly progressive disease with high morbidity and mortality that requires extensive care and multifaceted rehabilitation typically found at a tertiary facility.
- However, many patients initially present to smaller outside hospitals with less resources and require inter-hospital transfer during their treatment.
- The aim of in this study was to further characterize the overall prognosis of subjects with NSTI transferred to a higher echelon of care and to determine if there is a clinical difference in outcomes based on transfer status.

Methods

- Retrospective, multi-institutional review of subjects admitted for NSTI.
- Collected data on subject demographics, predictors of interhospital transfer, various outcomes, readmissions, and overall mortality.
- Compared outcomes between subjects transferred to tertiary facilities and those who initially presented to tertiary facilities.
- Also compared outcomes of patients who remained at outside hospitals with patients admitted to tertiary facilities.
- Categorical data was analyzed by Fisher's exact test, while continuous data was analyzed through a t-test.

Results

	Transferred (n=48)	Non-transferred (n=141)	P-values
Time from arrival to OR (hours)	32.27 ± 51.68	36.43 ± 70.76	0.708
Mean number of surgeries	4.46 ± 3.18	3.54 ± 3.47	0.568
Total ICU days	4.38 ± 6.81	3.30 ± 7.25	0.371
Hospital length of stay	21.0 ± 15.77	18.01 ± 15.34	0.249
Number of adverse events	0.56 ± 0.77	0.4 ± 0.68	0.178
Mortality	7 (14.58 %)	10 (7.09 %)	0.144
Discharge Destination			
Home/Self-care	27 (56.25 %)	85 (60.28 %)	0.734
Skilled nursing facility	3(6.25 %)	7 (4.96 %)	0.716
Inpatient rehabilitation	3 (6.25 %)	16 (11.35 %)	0.411
Prison	1 (2.08 %)	5 (3.55 %)	1.000
Readmissions	9 (18.75%)	42 (29.79%)	0.187

Table 1. Patient outcomes in those transferred from OSH to tertiary facility vs. not transferred (remained in tertiary facility)

	Stayed at OSH (n=100)	Tertiary Facility (n=189)	P-values
Time from arrival to OR (hours)	37.69±44.59	35.38±66.33	0.763
Mean number of surgeries	2.4±2.22	3.77±3.41	0.0003
Total ICU days	3.4±7.17	3.58±7.14	0.842
Hospital length of stay	15.76±12.29	18.77±15.47	0.093
Number of adverse events	0.47±0.66	0.44±0.70	0.764
Mortality	8 (8%)	17 (8.99%)	0.8299
Discharge Destination			
Home/Self-care	60 (60%)	112 (59.26%)	1.000
Skilled nursing facility	10 (10%)	10 (5.29%)	0.140
Inpatient rehabilitation	11 (11%)	19 10.05%)	0.841
Prison	0 (0%)	6 (3.17%)	0.096

Table 2. Patient outcomes in those who stayed at OSH vs those admitted to tertiary facility

Characteristics	n (%)
Received antibiotics	34 (70.83 %)
Pressors at OSH	4 (8.33 %)
Pressors on admission	5 (10.42 %)
Surgery at OSH	12 (25.0 %)

Table 3. Predictors of Interhospital Transfer

Results

- No difference in outcomes based on transfer status when analyzing time to surgery, number of surgeries, length of ICU and hospital stay, mortality, readmissions, and discharge destination.
- 70.8 % of transferred patients received antibiotics at the outside hospital (OSH), and only 8.33% of transferred patients received pressors at the time of transfer.
- In comparing patients who remained at outside hospitals to patients admitted to tertiary facilities, both initially and transferred, there was also no difference in outcomes.
- Of note, patients who stayed at outside hospitals had less surgeries (2.4±2.22) than those admitted to tertiary facilities (3.77±3.41) (p=0.0003).

Conclusion

- Interhospital transfer status does not appear to affect overall mortality among subjects admitted for NSTI.
- There were significantly less surgeries in patients at outside hospitals compared to tertiary facilities, likely representative of more severe cases of NSTI requiring transfer.
- Future studies with a higher proportion of interhospital transfer cases are required to further characterize predictors of transfer and overall outcomes