Outcomes of surgical stabilization of rib fractures in a minority population: Retrospective analysis of a case series from an acute care facility

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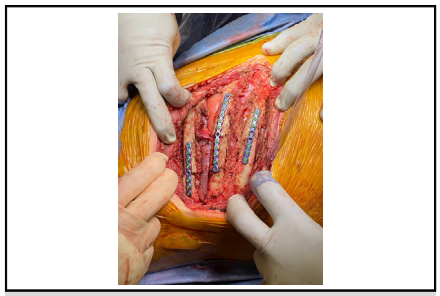
ABSTRACT

Objective: The aim of was to examine the postoperative outcomes and associated factors of surgical stabilization of rib fracture (SSRF) in a minority population.

Methods: A retrospective analysis with case series of 10 patients undergoing SSRF at an acute care facility in New York City was performed. Data, including patient demographic characteristics, comorbidities, hospital length of stay were collected. Results were presented in comparative tables and a Kaplan-Meier curve. Primary outcome was to compare outcomes of SSRF in minority patients to larger studies in nonminority populations. Secondary outcomes included various postoperative outcomes, including atelectasis, pain, and infection, and the influence of medical comorbidities on each.

Results: The median time (with accompanying interquartile range) from diagnosis to SSRF, SSRF to discharge, and overall length of stay was 4.5 days (4.25), 6.0 days (17.00) and 10.5 days (18.25) days, respectively. The time until SSRF and postoperative complication rate were found to be comparable to those in larger studies. The Kaplan-Meier curve demonstrates a correlation between persistence of atelectasis to increased length of stay ($P = .05$). Increased time to SSRF was seen in elderly patients and patients with diabetes ($P = .012$ and $P = .019$, respecively). Increased pain requirements by patients with diabetes ($P = .007$), and higher infectious complications in patients with flail chest and diabetes ($P = .035$ and $P = .002$, respectively) were also seen.

Conclusions: Preliminary outcomes and complication rates of SSRF in a minority population are shown to be comparable to larger studies in nonminority populations. Larger, higher-powered studies are required to further compare outcomes between these 2 populations. (JTCVS Open 2023;14:581-9)



Surgical stabilization of rib fractures.

CENTRAL MESSAGE

Rib fractures are associated with increased morbidity. Minority populations and those with limited insurance are less frequent recipients of surgical stabilization, which further increases morbidity.

PERSPECTIVE

Minority populations are less frequent recipients of surgical stabilization of rib fractures and are grossly understudied, resulting in a significant deficit in available literature. We examined postoperative outcomes of surgical stabilization of rib fractures in a minority population, and our results demonstrate outcomes and complication rate comparable to larger studies in nonminority populations.

Rib fractures occur in 9% to 10% of trauma patients[1] and continue to provide clinical challenges for patients and providers despite advances in trauma management strategies and analgesia. These injuries can increase incidence of complications and postoperative events, including atelectasis and pneumonia, increase hospital length of stay (HLOS), increase need for longer courses of pain medications, and also serve as an indicator for additional associated

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Abbreviations and Acroyms
BMI = body mass index
HLOS = hospital length of stay
IRB = institutional review board
SSRF = surgical stabilization of rib fracture

injuries (seen in approximately 94% of patients with rib fractures).[2,3] Prospective studies show trends toward long-term chronic pain and disability secondary to rib fractures, with a complication rate between 40% and 50%.

Surgical stabilization of rib fractures (SSRF) is often employed in patients with severe rib fractures, in populations with and without flail chest. In patients with flail chest, SSRF is now recommended in current guidelines as a result of multiple studies demonstrating significantly improved clinical outcomes.[4] In the nonflail population, incidence of SSRF is increasing both in large, high-volume trauma centers, and recently in the smaller, lower-volume and non-trauma centers.[5] Many studies now have been conducted showing benefits in this nonflail population, most demonstrating retrospective and observational data, with significant findings of pain improvement, decreased pulmonary complications, and improved respiratory-related quality of life observed in a multicenter prospective trial.[6]

An understudied cohort of patients who may benefit from SSRF is those in underserved areas and minority populations. A retrospective review of the Trauma Quality Improvement Program examined 95,227 patients presenting with rib fractures and used multivariate logistic regression analysis to determine the effect of race and insurance status on treatment strategies offered and performed. There were statistically significant discrepancies noted, with those uninsured, Medicare, and nonprivate insurance patients associated with higher mortality, and a lower likelihood of receiving SSRF.[7] We aim to address this discrepancy in SSRF allocation with a focused retrospective study to present the postoperative outcomes and associated factors after SSRF in the largely understudied minority population.

METHODS

Study Design and Data Collection

This study was a retrospective analysis with case series of 10 patients at a single center acute care facility undergoing SSRF between January 1, 2021, and July 1, 2022. The Institutional Review Board (IRB) or equivalent ethics committee of the Harlem Hospital Center approved the study protocol and publication of data. Patient written consent for the publication of the study data was waived by the IRB because data were collected by retrospective review of documentation within respective medical records only (IRB approval No.: BRANY IRB File #22-12-704-273; approval date September 14, 2022). Indications for all cases included traumatic rib fractures with significant displacement, regardless of flail chest, and all cases of surgical stabilization performed at this facility were included without any exclusion criteria. All cases were performed by a single surgeon trained in rib fixation, and ZimmerBiomet RibFix Blu Thoracic Fixation System was used for each. Relevant data were collected on September 15, 2022. This included details of trauma mechanism and operative and perioperative events: type of trauma, additional injuries, time spent intubated, time until chest tube removal, time spent on intravenous and opioid pain medication, HLOS, and others. Data on follow-up visits were collected for as long as documented in the medical record.

Clinical and demographic variables, including comorbidities (hypertension, diabetes mellitus, chronic obstructive pulmonary disease, and congestive heart failure), smoking history, body-mass index (BMI), and others were also obtained. Specific history of prior thoracic surgery was collected, including type and indications for surgery, number and location of rib fractures stabilized, follow-up details, and complications such as presence and duration of atelectasis. All patients included in this study have either Medicare or Medicaid insurance or are uninsured. Our primary outcome was to compare outcomes of SSRF in minority patients to larger studies in nonminority populations and secondary outcomes included various postoperative outcomes, including atelectasis, pain, and infection, and the influence of medical comorbidities on each.

Baseline characteristics and comorbidities were compared with the use of the Pearson χ^2 analysis. We demonstrated the timeline of events in table format and used length of time on intravenous and opioid medications, as a surrogate for a pain score. We used a comparative mixed model for analysis of raw data with creation of Kaplan-Meier curves to demonstrate the relationship of atelectasis with HLOS and χ^2 analyses to determine the influence of several comorbidities on several outcome measures.

RESULTS

Ten surgical stabilization operations were performed. Baseline demographic data of patients included are in Table 1. All patients evaluated in this study were men, and we draw attention to the patients' race and native language to further demonstrate a minority population. Table 2 demonstrates comorbidities of the patients included, which after χ^2 analysis noted no statistically significant difference in smoking status, BMI, individual comorbidities such as diabetes, hypertension, preexisting pulmonary disease, substance use history, cardiac disease, and others. Table 3 illustrates perioperative details, including trauma mechanism, associated injuries, and further details of the surgeries performed.

All patients included in this study underwent surgical stabilization of 2 or more ribs after incurring traumatic fractures, Figure 1 is a bar graph detailing distributions of rib fractures. The most commonly injured rib on either laterality was the fifth rib, with more ribs injured on the right side but overall, a largely similar distribution.

We constructed a timeline of events consisting of the median times for specified events and calculated corresponding interquartile ranges (IQR) with respective SD (Table 4). We present the timeline of the patients' hospital course in the following format: days from diagnosis of rib fractures to SSRF, days from fixation to discharge, and HLOS in days. The median duration of time for these (and their accompanying IQR) were found to be 4.5 days (4.25), 6.0 days (17.00), and 10.5 days (18.25) days, respectively. Patients were followed for a median of 36.5 days (IQR, 33 days) comprising both inpatient and outpatient setting.

TABLE 1. Baseline patient characteristics

Metric*	Subgroup	Count	χ^2 (*P* value)	*df*
Gender	Male	10	–	–
	Female	0	–	–
Race	African American	3	4.000 (.4060)	4
	Hispanic or Latino/a	4		
	White/Hispanic	1		
	White	1		
	None or Other	1		
Language	English	8	3.600 (.0578)	1
	Spanish	2		
Smoking status	Smoker	6	5.437 (.0660)	2
	Former smoker	0		
	Non-smoker	4		
Body mass index†	Normal weight (18.5-24.9)	2	6.251 (.1001)	3
	Overweight (25.0-29.9)	3		
	Class I obesity (30.0-34.9)	1		
	Class II obesity (35.0-39.9)	3		
	Class III obesity (≥40)	0		
Chronic disease‡	Diabetes	2	3.600 (.0578)	3
	Hypertension	4	.400 (.5271)	
	Alcohol/substance abuse	3	1.600 (.2059)	
	Pulmonary/respiratory disease	3	1.600 (.2059)	
	Obesity	3	1.600 (.2059)	
	Cardiac disease	2	3.600 (.0578)	
	Hematologic	2	3.600 (.0578)	
	Neurological	2	3.600 (.0578)	
	Immunologic	1	6.400 (.0114)	
	Infectious disease	1	6.400 (.0114)	
	Bone, joint disorder	1	6.400 (.0114)	
Total comorbidities	0-1	5	6.000 (.1991)	4
	2-3	1		
	4-5	2		
	6-7	1		
	8-9	1		
Total		10		

*Metrics were tested using yes vs no, or binomials, run against equal distributions, using 2 × 2 χ^2/Fisher exact test, assuming $P < .05$ for statistical significance, in SPSS version 28.0.1.1 (IBM-SPSS Inc). †Tested against 1-4-4-1-0 for groups defined, rather than equal distribution. ‡Chronic diseases and comorbidity were tested using 2 × 2 χ^2 process is SPSS, for n = 10, per metric (table row).

Additional secondary timelines included time until the patient was no longer taking narcotic medication; also, the time from admission until the patient was taking oral medication only, with both serving as a surrogate for a pain score. Total length of stay in the intensive care unit was calculated along with time spent intubated postoperatively. Among our secondary outcomes, we documented time taken for resolution of postoperative atelectasis seen on serial radiographs during follow-up, with resolution determined by the radiologist unable to detect clinically significant findings. Using a Kaplan-Meier curve (Figure 2 and Figure 3) demonstrating atelectasis as a factor associated with HLOS, we further note that in patients where atelectasis persisted for more than a week, there was a statistically significant difference in HLOS ($P = .05$; 95% CI, 16.5-79.1).

We then performed χ^2 analysis comparing patient metrics, including the most prevalent comorbidities, presence or absence of atelectasis, and disposition to home or a skilled nursing facility to determine significance relating to length of stay in intensive care unit, time until rib fixation, or complications such as development of pneumonia, persistent pain, or need for tracheostomy (Table 4). In Table 4, we note a statistically significant difference in time to stabilization, with patients aged 50 years or older having a longer time until fixation than those younger than age 50 years ($P = .012$). We further see patients with diabetes noted to have longer time to stabilization ($P = .019$), longer time on narcotics ($P = .019$), longer time until taking oral pain medication only ($P = .007$), and increased risk of pneumonia and need for tracheostomy (both $P = .002$). Patients with flail chest were found to have higher incidence of pneumonia and need for tracheostomy compared with other groups ($P = .035$). Taking into account the disposition of the patients after their hospital course, it was noted that patients who were discharged home were noted to have had less time until surgical stabilization was performed ($P = .018$), less time on narcotics ($P = .013$), less time until taking only oral medications ($P = .034$), and lower incidence of tracheostomy or pneumonia (both *P* values = .019) compared with those discharged to rehab, other skilled facilities, or shelters for the undomiciled. We did not note statistical significance of the above parameters with regard to hypertension, BMI, or smoking history.

DISCUSSION

This study was initiated to address the gap in current literature on the outcomes associated with SSRF in minority populations specifically. This was performed by retrospective chart review of a small cohort of minority population patients who underwent SSRF. Our key findings include a HLOS and other clinically relevant perioperative factors and quality metrics similar to larger studies described for nonminority specific populations.

Our study participants consisted of 70% African American and Hispanic patients, with 100% uninsured or on Medicare or Medicaid. This is significant because few studies have focused specifically on SSRF in inner-city hospitals. Patients who are uninsured or are on Medicare and nonprivate insurance presenting with rib fractures tend to have higher mortality and a lower likelihood of receiving SSRF when compared with patients with alternate insurance options.[7] This is seen in several similar studies, most notably in a large retrospective study analyzing more than

TABLE 2. Perioperative details

Patient	Trauma mechanism	Thoracic injuries	Flail chest	SSRF performed	Other thoracic procedures	Type of incision for SSRF	Procedure laterality	No. ribs broken	No. ribs fixed	Extra-thoracic injuries	Extrathoracic surgeries	Days from diagnosis until SSRF	HLOS	No. days with atelectasis	Disposition
1	Fall	- Severely displaced fractures of R lateral fifth and sixth ribs R pneumothorax	N	R fifth and sixth ribs	None	R-PLT	R	2	2	None	None	1	4	4	Home
2	Moped struck by MV	- Severely displaced fractures of L posterolateral second to eighth ribs L hemothorax	N	L third to sixth ribs	None	L-PLT	L	7	4	None	None	4	11	7	Home
3	MVA	- Displaced fractures of L anterior second to seventh ribs L hemopneumothorax	N	L third to sixth ribs	- L VATS, hematoma evacuation decortication	L-ALT	L	6	4	- L adrenal hematoma - Grade 2 R kidney laceration - Grade 3 splenic laceration grade 3 liver laceration	None	6	8	8	Home
4	Moped struck by MV	- severely displaced fractures of right anterolateral 3rd - 5th ribs right hemopneumothorax	N	right 3rd and 4th ribs	- Right VATS-assisted mini-thoracotomy - evacuation of hemothorax partial decortication	Right PLT	R	3	2	- mild displaced fracture of right C6 and C7 transverse processes - laceration of the right wrist non-displaced fracture of right 2nd metacarpal	None	2	7	11	Home
5	Moped struck by MV	- Displaced fractures of L lateral fifth to eighth ribs Lhemothorax	N	left fifth to seventh ribs	- L VATS evacuation of hematoma	L-PLT	L	4	3	- Grade 5 splenic laceration anterior gastric wall injury	- Exploratory laparotomy - Splenectomy gastrorraphy	5	8	27	Home
6	Fall	- Displaced fractures of R fifth to eighth ribs R hemothorax	N	R fifth to eighth ribs	- R VATS - Evacuation of hematoma - Pneumolysis partial decortication	R-PLT	R	4	4	- L retrobulbar hematoma - bilateral nasal fracture - inferior orbital wall fracture - Rscapular fracture - Acute compression fracture of T3 and T2 vertebral bodies acute nondisplaced fracture of R T8 transverse process	None	3	27	8	SNF

(Continued)

TABLE 2. Continued

Patient	Trauma mechanism	Thoracic injuries	Flail chest	SSRF performed	Other thoracic procedures	Type of incision for SSRF	Procedure laterality	No. ribs broken	No. ribs fixed	Extra-thoracic injuries	Extrathoracic surgeries	Days from diagnosis until SSRF	HLOS	No. days with atelectasis	Disposition
7	Pedestrian Struck by MV	- Displaced fractures of R posterior fourth to seventh ribs R hemothorax	N	R fourth to seventh ribs	- R VATS evacuation of hematoma	R-PLT	R	4	4	- R adrenal hematoma - Retroperitoneal hematoma - Pubic symphysis widening L sacroiliac joint disruption	ORIF pubic symphysis and L sacroiliac joint	4	10	10	Home
8	Pedestrian struck by MV	- Displaced fractures of R anterolateral third to ninth ribs R hemopneumothorax	N	R sixth to ninth ribs	- R VATS - Primary repair of small diaphragmatic injury total decortication	R-PLT	R	7	4	None	None	8	24	24	SNF
9	Pedestrian struck by MV	- Displaced fractures of R posterior second and fifth to ninth ribs - Displaced fractures of R anterolateral second to eighth ribs R hemothorax	Y	R fifth to seventh ribs	- R VATS - Evacuation of hemothorax total decortication	R-PLT	R	8	3	- Comminuted fractures of bilateral scapulae - L displaced clavicle fracture L side subdural hematoma	None	13	77	77	SNF
10	Pedestrian struck by MV	- Markedly displaced fractures of L posterior second to sixth ribs - Displaced fractures of L 10th rib, L hemothorax	N	L fourth to sixth ribs	- L VATS - Evacuation of hemothorax total decortication	L-PLT	L	6	3	- Comminuted fractures of bilateral scapulae - L displaced clavicle fracture, L side subdural hematoma	None	28	77	77	SNF

SSRF, Surgical stabilization of rib fracture; *HLOS*, hospital length of stay; *N*, No; *R*, right; *PLT*, posterolateral thoracotomy; *MV*, motor vehicle; *L*, left; *MVA*, motor vehicle accident; *VATS*, video-assisted thoracoscopic surgery; *ALT*, anterolateral thoracotomy; *SNF*, skilled nursing facility; *ORIF*, open reduction - internal fixation.

TABLE 3. Timeline of events

	No. of Patients	Median	Minimum	Maximum	Interquartile range	SD
HLOS (d)	10	10.50	4	77	18.25	28.24
Time from presentation to diagnosis (days)	10	0.00	0	3	0.00	0.97
Time from diagnosis to stabilization (d)	10	4.50	2	28	4.25	7.80
Time from stabilization to discharge (d)	10	6.00	3	65	17.00	24.65
Total time taking narcotic medication (d)	10	10.50	4	54	18.25	19.05
Total time until taking oral medication only (d)	10	8.00	4	30	3.50	9.58
ICU LOS (d)	10	3.13	1	46	3.56	18.22
Time from demonstration of atelectasis on radiograph until resolution (d)	10	7.00	2	13	7.00	4.11
Time spent intubated postoperatively (h)	10	23.50	1	288	24.50	113.51
LOS followed for (d)	10	36.5	4	98	33	26.91

HLOS, Hospital length of stay; *ICU*, intensive care unit; *LOS*, length of stay.

600,000 patients with rib fractures where it was determined that patients who are underinsured, African American and Hispanic were less likely to undergo SSRF and have generally inferior outcomes contrasted to other cohorts.[8] There remains limited data with specific focus on the outcomes within these specific minority populations following SSRF.

Rib fractures, along with imposing significant impairment on patients, incur an economic toll due to both the cost of hospital stay and procedures as well as the loss of workdays for patients.[9] This burden has led to chest wall injury centers throughout the United States[10] that focus on improved outcomes and quicker return to work. Unfortunately, not all patients have access to specialized tertiary centers, notably our study population and others with similar demographic characteristics. Due to these disparities, almost 50% of patients with rib fractures receive treatment at centers without trauma service or capabilities to perform SSRF, with only approximately 4% of patients transferred to tertiary centers for the appropriate procedures.[11] To attempt to address these disparities, some studies have advocated for nonthoracic surgeons (trauma surgeons or general surgeons) performing these procedures,[12] or strict transfer guidelines for such[13] without much traction gained for either option. These limitations and others lend to the significant disparity in care between patients in lower compared with higher socioeconomic statuses.

In our study, we note a median HLOS of 10.5 days. When dissecting this number, we note minimal time from initial presentation to diagnosis of rib fractures (<1 day; median, 0 days; IQR, 0.0 days) and a median time until surgical intervention of 4.5 days (IQR, 4.25 days). Guidelines from the Eastern Association for the Surgery of Trauma[4] and other large literature reviews[14] recommend surgical stabilization be performed when indicated within 72 hours of injury for

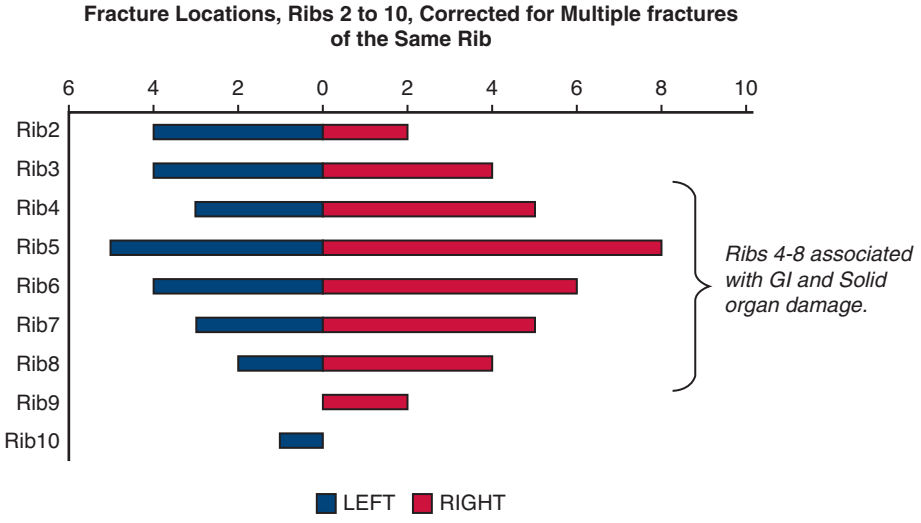

FIGURE 1. Bar graph showing rib fracture locations. *GI*, Gastrointestinal.

TABLE 4. The χ^2 analysis and accompanying *P* values of measured outcomes associated with comorbidities*

	Age†	BMI	HTN	Diabetes	Smoker/nonsmoker	Flail chest‡	Disposition§
Time to SSRF	.012	.261	.217	.019	.217	.217	.018
Time on Narcotics	.074	.261	.188	.019	.12	.217	.013
Time spent requiring IV medication	.331	.127	.143	.007	.143	.108	.034
Presence of Pneumonia	.153	.114	.053	.002	.053	.035	.019
Tracheostomy required	.153	.114	.053	.002	.053	.035	.019
ICU length of stay	.302	.306	.323	.075	.161	.487	.095

BMI, Body mass index; *HTN*, hypertension; *SSRF*, surgical stabilization of rib fractures; *IV*, intravenous; *ICU*, intensive care unit. *For calculations, d*f* = 1. †>50 y versus <50 y. ‡Present versus absent. §Home versus skilled nursing facility.

decreased HLOS as well as lower incidence of tracheostomy and pneumonia. The median time to SSRF obtained in this review, although longer than recommended by Eastern Association for the Surgery of Trauma, approaches that identified by Prins and colleagues[14] in a review of the 9 major studies addressing timing of SSRF on outcomes, where the authors note an approximate overall median of approximately 4 days until SSRF. Reasons attributed to this delay in intervention relate to many of our participants having additional injuries requiring immediate surgical intervention (22% of patients) with 50% of treated patients initially too unstable for safe surgical intervention. The remainder of the HLOS is difficult to interpret because many patients treated at this facility were undomiciled or had other social issues preventing safe discharge once medically optimized, with many being discharged to a shelter or halfway house. The average hospital stay following SSRF remains underreported in the literature without clear consensus on an appropriate duration, making comparison of our median of 10.5 days to larger studies difficult.

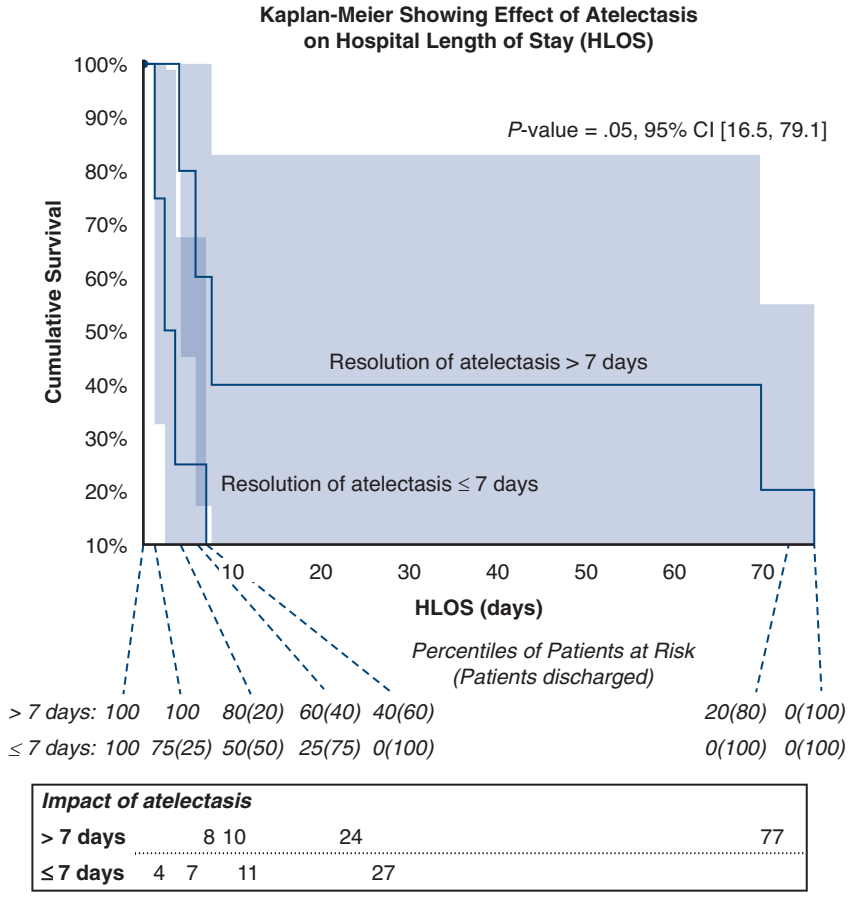

FIGURE 2. Kaplan-Meier curve showing effect of atelectasis on hospital length of stay (HLOS). *CI*, Confidence interval.

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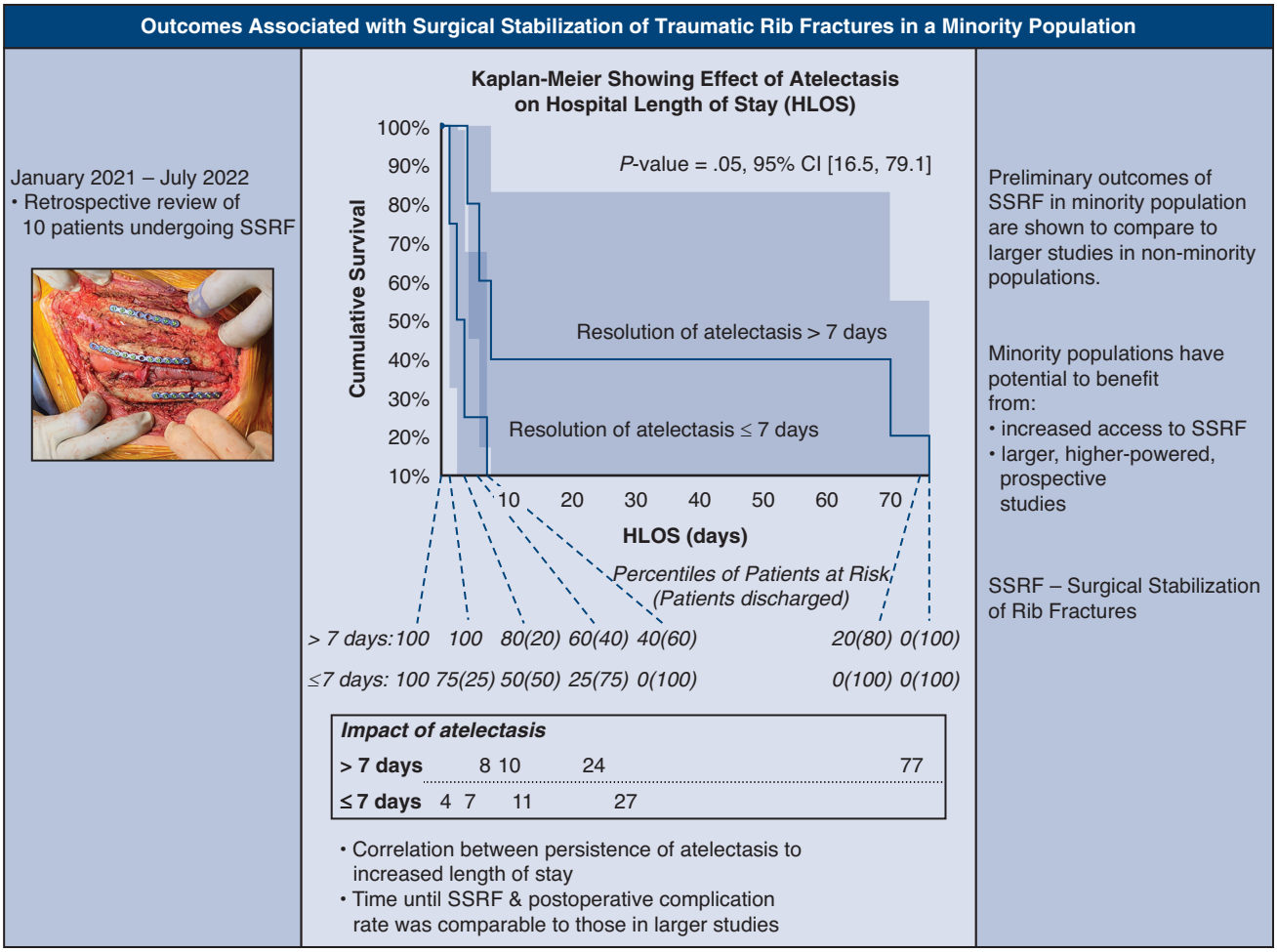

FIGURE 3. Outcomes associated with surgical stabilization of traumatic rib fractures (*SSRFs*) in a minority population. *CI*, Confidence interval.

Adequate pain control remains a challenge both for patients and providers after SSRF. A major objective of SSRF is to decrease pain and improve pulmonary mechanics[15]; thus, we decided to evaluate pain among our secondary outcomes. To accomplish this, we evaluated the time spent on narcotic medications (median, 10.5 days; IQR, 18.25 days), and time until the patient was taking oral medications only for pain (median, 8.0 days; IQR, 3.5 days) as surrogates for a pain score. These median values encompass the entire HLOS of the patients, and further trend downward once applied only to postoperative pain medication requirements. Opioids were only ordered as the situation calls for it for patients who reported "severe" pain (>7 out of 10 on a numerical rating scale), in efforts to standardize administration. Aside from 1 notable outlier in this study, a proposed reason for the lengthy inpatient analgesia requirements may be due to no defined enhanced recovery after surgery protocol for perioperative pain management. Additionally, approximately 30% of our patient cohort has a history of polysubstance abuse. Prior exposure to opioids is generally associated with a longer duration of narcotic use after rib fracture,[16] possibly resulting in some degree of tachyphylaxis contributing to this timeline. There was no significant history of any chronic pain conditions that may influence inpatient pain. Table 3 further demonstrates that, along with rib fractures, several of our participants have multiple additional injuries as well as additional surgical interventions that may have resulted in increased postoperative pain.

We lastly note the assessment of postoperative atelectasis that was found to occur in 90% of our patient population, with a median time to resolution of 7 days (IQR, 7.0 days) monitored by chest radiograph. Atelectasis is among

the major contributors to respiratory compromise in patients with rib fractures,[9] but there is scarce literature on the benefit of SSRF on incidence or duration of postoperative atelectasis. In an attempt to address this paucity of data, as well as to evaluate the influence of atelectasis on the outcomes of the patients in this study, we presented our findings in the form of a Kaplan-Meier curve (Figure 2). From this we see that patients who had atelectasis last for less than a week had a statistically significant decrease in HLOS than patients in whom atelectasis persisted. This finding is relatively intuitive and corroborates the findings of a myriad of studies noting respiratory compromise and the ensuing poor outcomes of affected patients.[17]

Several limitations of our study exist. Firstly, the study design is a retrospective observational study, with a small case series of only 10 patients. This review was performed at a single acute care facility and included all patients who underwent rib fracture fixation; however, there was not sufficient volume for a control group to be analyzed. With a small series such as this, we presented a timeline using median and IQR to account for any outlying data. Additionally, we analyzed time spent on intravenous and opioid medications as surrogates for pain scores; the results obtained in these variables could potentially be confounded by other factors, such as prescriber or health care providers' perception of patient's pain despite in-hospital attempts to mitigate inherent bias.

CONCLUSIONS

The postoperative outcomes following SSRF in a minority population was analyzed, and in this small retrospective study we note prolonged HLOS and increased analgesia requirements when compared with larger studies of generalized population samples. We note an association with possible benefit in patients without persistent atelectasis, and worse outcomes with tendency for longer hospital stay and in-hospital morbidities in patients with diabetes and flail chest on admission. Predictive factors of posthospital disposition were found to be time until rib fixation, length of time requiring narcotic medication, and in-hospital complications. We encourage additional research in the form of larger prospective analyses and randomized controlled trials in minority populations undergoing SSRF in an effort to improve perioperative outcomes. Future studies with a focus on these populations and research on tailored approaches and interventions are integral to promote optimal selection of patients to determine true clinical implications.

Conflict of Interest Statement

The authors reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

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