Safety and Feasibility of Performing Benign Foregut Procedures at a Safety-Net Hospital

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BACKGROUND

▪One-half of Americans have limited access to healthcare due to socioeconomic barriers.

▪Care of these patients is often through safety-net hospitals, which are associated with worse medical outcomes.

Aim

▪To compare the outcomes of patients who received foregut surgery at a safety-net hospital to those at a private or University hospital.

METHODS

▪Retrospective study of adult patients who underwent hiatal hernia repair or fundoplication for gastroesophageal reflux disease (GERD) at a safety-net hospital, private hospital, or University hospital from June 2015 to May 2020.

▪The primary outcome was radiographic recurrence.

▪ Secondary outcomes included reoperation and symptom recurrence.

▪ Analysis was performed using ANOVA, chi-square, and logistic regression.

RESULTS

▪499 patients identified

- ▪157 safety-net hospital
- ▪233 private hospital
- ▪119 University hospital

Patient Demographics

▪The safety-net hospital treated more Hispanics, females and patients with co morbidities.

Table 1: Demographics and Medical History

Variables	Safety-Net (n=157)	Private (n=223)	University (n=119)	P Value
Age, y, mean ± SD	53.0 ± 11.3	60.5 ± 13.3	49.8 ± 12.3	<0.001
Sex, male, n (%)	41 (25.7%)	66 (29.6%)	50 (42.0%)	0.014
Race, n (%)				<0.001
Hispanic	107 (68.2%)	13 (5.8%)	11 (9.2%)	
African American	16 (10.2%)	15 (6.7%)	15 (12.6%)	
Caucasian	30 (19.1%)	138 (58.3%)	72 (60.5%)	
Asian	2 (1.3%)	0 (0%)	0 (0%)	
Other	2 (1.3%)	57 (25.6%)	21 (17.6%)	
BMI, kg/m2, mean ± SD	29.8 ± 5.1	30.5 ± 5.5	28.3 ± 4.9	0.001
<30, kg/m2	81 (51.6%)	103 (46.2%)	72 (60.5%)	0.07
30-40, kg/m2	73 (46.5%)	111 (49.8%)	46 (38.7%)	
>40, kg/m2	3 (1.9%)	9 (4.0%)	1 (0.8%)	
Diabetes mellitus, n (%)	23 (14.6%)	25 (11.2%)	7 (5.9%)	0.07
COPD, n (%)	6 (3.8%)	11 (4.9%)	0 (0%)	0.053
Previous abdominal operation, median				
Yes, n (%)	60 (38.2%)	112 (50.2%)	46 (38.7%)	0.038
Median (range)	0 (0-3)	1 (0-4)	0 (0-3)	0.006

Preoperative Workup

▪Large hiatal hernias were more common at the safety-net and private hospitals.

▪Patients at the safety-net hospital had more reflux and pain.

Operative Details

▪The safety net hospital performed primarily laparoscopic surgery

▪The private hospital performed laparoscopic surgery

▪The academic hospital performed both laparoscopic and robotic surgery

Table 3: Operative Details

Variables	Safety-Net (n=157)	Private (n=223)	University (n=119)	P Value
Operative approach, n (%)				<0.001
Open	0 (0%)	0 (0%)	0 (0%)	
Laparoscopic	145 (92.4%)	223 (100%)	66 (55.5%)	
Robotic	10 (6.4%)	0 (0%)	53 (44.5%)	
Lap Convert to Open	2 (1.3%)	0 (0%)	0 (0%)	
Cruropexy Type, n (%)				<0.001
Interrupted	126 (80.2%)	223 (100%)	116 (97.5%)	
Running	31 (19.8%)	0 (0%)	3 (2.5%)	
Cruropexy approach				<0.001
Anterior	0 (0%)	0 (0%)	1 (0.8%)	
Posterior	157 (100%)	223 (100%)	89 (74.8%)	
Both	0 (0%)	0 (0%)	29 (24.4%)	
Gastropexy, n (%)	62 (39.5%)	2 (0.9%)	0 (0%)	<0.001
Bougie, n (%)	2 (1.3%)	13 (5.8%)	51 (42.9%)	<0.001
Fundoplication type, n (%)				<0.001
Complete	87 (55.4%)	17 (7.6%)	51 (42.9%)	
Partial	70 (44.6%)	206 (92.3%)	68 (57.1%)	

* Safety Net N=87, Private=133, Academic=2

Outcomes

▪There was no statistically significant difference between the three institutions in radiographic recurrence, reoperation or recurrence of dysphagia.

▪ The safety-net and private hospitals had less recurrence of reflux symptoms.

▪ Emergency department visits post operatively were more common for safety-net patients.

▪There were no significant differences in rates of surgical site infections, radiographic recurrence or reoperation between the three groups.

Table 4: Outcomes

Variables	Safety-Net (n=157)	Private (n=223)	University (n=119)	P Value
Follow up duration, Median (IQR) months	17 (41)	16 (50)	20 (59)	-
Symptom Recurrence, n (%)				
GERD	32 (20.4%)	32 (14.3%)	48 (40.3%)	<0.001
Dysphagia	24 (15.3%)	28 (12.6%)	18 (15.1%)	0.696
Surgical site infections, n (%)	2 (1.3%)	1 (0.4%)	0 (0%)	0.369
Emergency department visit, n (%)	44 (28.0%)	28 (12.6%)	5 (4.2%)	<0.001
Radiographic recurrence, n (%)	21 (13.4%)	44 (19.7%)	21 (17.6%)	0.269
Reoperation, n (%)	6 (3.8%)	16 (7.2%)	8 (6.7%)	0.389

CONCLUSIONS

▪Despite the challenges faced at safety-net hospitals, it is feasible to safely perform minimally invasive foregut surgery with similar outcomes to private and University hospitals.

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