Single Institution Experience with Ursodeoxycholic Acid Use After Bariatric Surgery

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INTRODUCTION

- Data suggests post-operative use of ursodeoxycholic acid (UDCA) after bariatric surgery significantly reduces risk of post-operative biliary symptoms requiring intervention (RR .35) [1]
- Our institutional practice evolved over the course of time with intermittent prescription of UDCA in our bariatric surgery population: UDCA was routinely prescribed between years 2013 and 2018 and not routinely prescribed between 2018 and 2022
- This lends a strong comparison model for a homogenous population, and we aimed to investigate the incidence of biliary intervention after bariatric surgery between patients prescribed UDCA postoperatively versus those who were not

METHODS

- A retrospective review was conducted of patients undergoing laparoscopic sleeve gastrectomy (LSG) or laparoscopic Roux-en-Y gastric bypass (LRYGB) at a single independent academic institution between 2013 and 2022
- All patients aged ≥18 years undergoing bariatric surgery during the study period were included. Patients who had a prior cholecystectomy were excluded
- Postoperative UDCA (600 mg/daily for 6 months for LRYGB and 500 mg/daily for LSG) was prescribed for 435/1164 (37%) of patients
- Gallbladder disease was defined as symptomatic cholelithiasis, cholecystitis, choledocholithiasis, biliary sludge, gallstone pancreatitis, or other symptomatic gallbladder-related pathologies [e.g., symptoms that prompted an ERCP]
- The incidence of biliary intervention was compared between patients not prescribed UDCA postoperatively and those prescribed UDCA. Comparisons were made using Wilcoxon rank-sum test, Pearson chi-square test, or Fisher's exact tests
- Patients with and without UDCA prescribed were matched based on age at surgery, BMI prior to surgery, and sex (known variables associated with risk for gallbladder disease). The matching was done using coarse exact matching with age cutpoints at 30, 40, 50, 60, and 70 years and with BMI cutpoints at 25, 30, 35, 40, 45, and 50 kg/m^2

PRIMARY OUTCOMES

	Ursodiol Ordered			
	Overall N = 1,164[1]	**No** N = 729[1]	**Yes** N = 435[1]	**p-value**[2]
Cholecystectomy within 1 year	27 (2.3%)	12 (1.6%)	15 (3.4%)	**0.048**
Gallbladder disease within 1 year	54 (4.6%)	30 (4.1%)	24 (5.5%)	0.3
ERCP within 1 year	1 (<0.1%)	1 (0.1%)	0 (0%)	>0.9
Antibiotic ordered within 1 year	822 (71%)	606 (83%)	216 (50%)	**<0.001**
Antibiotic and GB DX within 1 year	49 (4.2%)	27 (3.7%)	22 (5.1%)	0.3

[1] n (%)
[2] Pearson's Chi-squared test; Fisher's exact test

GB: Gallbadder, DX: Diagnosis, ERCP: Endoscopic Retrograde Cholangiopancreatography

Unmatched Comparisons

	Ursodiol Ordered			
	Overall N = 1,152[1]	**No** N = 719[1]	**Yes** N = 433[1]	**p-value**[2]
Cholecystectomy within 1 year	30 (2.6%)	15 (2.1%)	15 (3.5%)	0.3
Gallbladder disease within 1 year	58 (5.0%)	34 (4.7%)	24 (5.5%)	0.6
ERCP within 1 year	0 (<0.1%)	0 (<0.1%)	0 (0%)	0.4
Antibiotic ordered within 1 year	815 (71%)	600 (83%)	215 (50%)	<0.001
Antibiotic and GB DX within 1 year	51 (4.4%)	29 (4.0%)	22 (5.1%)	0.4

[1] n (%)
[2] Pearson's X^2: Rao & Scott adjustment

GB: Gallbadder, DX: Diagnosis, ERCP: Endoscopic Retrograde Cholangiopancreatography

Matched Comparisons

	Ursodiol Ordered	
Characteristic	**No** N = 729[1]	**Yes** N = 435[1]
Surgery year		
2013	47 (34%)	93 (66%)
2014	30 (27%)	82 (73%)
2015	28 (27%)	77 (73%)
2016	39 (34%)	75 (66%)
2017	40 (39%)	62 (61%)
2018	77 (64%)	44 (36%)
2019	109 (100%)	0 (0%)
2020	125 (98%)	2 (1.6%)
2021	226 (100%)	0 (0%)
2022	8 (100%)	0 (0%)

[1] n (%)

UDCA Prescriptions Over Time

RESULTS

- 1,164 patients were included in the study (51% underwent LRYGB and 49% underwent LSG)
- Patients prescribed UDCA were more likely to be male (25% vs 16%, p < .001) and to have hypertension (44% vs 32%, p < .001)
- Treatment arm patients were less likely to
  - Utilize Medicare/Medicaid insurance (8.7% vs 19%, p < .001)
  - Have heart disease (15% vs 20%, p = .03), OSA (47% vs 59%, p < .001)
  - Have substance use disorder (1.6% vs 4.8%, p = .005)
  - Have a psychiatric diagnosis (52% vs 66%, p < .001) prior to surgery

CONCLUSIONS

- Use of post-operative ursodeoxycholic acid after bariatric surgery did NOT decrease risk of requiring cholecystectomy within 1 year
- When matching UDCA and non-UDCA patients based on age at surgery, BMI at surgery, and sex:

There were no significant differences in the rate of the rate of gallbladder/biliary diagnoses or in the rate of antibiotics with gallbladder/biliary diagnoses (P = .18, P = .51, respectively)

References

1. Chen JH, Tsai MS, Chen CY, Lee HM, Cheng CF, Chiu YT, Yin WY, Lee CH. Bariatric Surgery Did Not Increase the Risk of Gallstone Disease in Obese Patients: a Comprehensive Cohort Study. Obes Surg. 2019 Feb;29(2):464-473. doi: 10.1007/s11695-018-3532-1. Erratum in: Obes Surg. 2019 Jan 31;: PMID: 30417273.