Prevalence of Barrett's Esophagus in Patients with Autoimmune Disease: A Large Population Based Study

Akash T. Khurana, MD[1]; Syed A. Adil, MD[1]; Vibhu Chittajallu[2], MD; Abbinaya Elangovan, MD[2], MD Amitabh Chak, MD[2]
[1]University Hospitals, Cleveland Medical Center, Department of Medicine, [2]University Hospitals, Cleveland Medical Center, Digestive Health Institute

Introduction

- Systemic lupus erythematosus (SLE), Rheumatoid arthritis (RA) and Sjögren's syndrome (SjS) are multi-system rheumatologic diseases with known esophageal manifestations
- Most commonly this includes gastroesophageal reflux disease
- GERD develops as a result of several hypothesized mechanisms including impaired peristalsis, decreased lower esophageal sphincter tone, and increased visceral hypersensitivity
- There are no data on the prevalence of Barrett's esophagus (BE).

Methods and Materials

- The aim of this study was to investigate the prevalence of Barrett's esophagus in patients with SLE, RA and SjS
- Data were collected from a commercial database (Explorys Inc, Cleveland, OH), an aggregate of electronic health records data from 27 integrated healthcare systems in the US between 4/2017-4/2022
- We identified patients using SNOMED-CT diagnosis
- We compared the prevalence of BE at least 30 days after a diagnosis of each autoimmune condition to a control cohort without the autoimmune disease
- We sub-categorized using demographics including gender, race, age, and BMI
- We also included data on tobacco use, alcohol use, and proton pump inhibitor (PPI) therapy.
- A univariate analysis was conducted using Microsoft Excel and MedCalc statistical software

Results

Barrett's Esophagus	With SLE (%)	Without SLE (%)	With RA (%)	Without RA (%)	With SjS (%)	Without SjS (%)
Total	1500	169660	5590	164360	1340	170630
Adult (18-65)	680 (45.3)	65350 (38.5)	1570 (28.1)	64290 (39.1)	420 (31.3)	66010 (38.7)
Elderly (>65)	830 (55.3)	105780 (62.3)	4050 (72.5)	101530 (61.8)	930 (69.4)	106090 (62.2)
Female	1210 (80.7)	76170 (44.9)	3560 (63.7)	73020 (44.4)	1110 (87.3)	76610 (62.2)
Male	290 (19.3)	92850 (54.7)	2020 (36.1)	90690 (55.2)	220 (16.4)	93410 (54.7)
F:M ratio	4.2	0.8	1.8	0.8	5.0	0.8
Caucasian	1280 (85.3)	144440 (85.1)	4940 (88.4)	139680 (85.0)	1170 (87.3)	145240 (85.1)
African American	130 (8.7)	6120 (3.6)	280 (5.0)	5900 (3.6)	50 (3.7)	6250 (8.4)
Tobacco use	370 (24.7)	31190 (18.4)	1660 (29.7)	29530 (18.0)	320 (23.9)	31450 (18.4)
Alcohol use	170 (11.3)	14160 (8.3)	520 (9.3)	13670 (8.3)	80 (6.0)	14360 (8.4)
Obese (BMI >30)	380 (25.3)	29880 (17.6)	1400 (25.0)	28470 (17.3)	320 (23.9)	30060 (17.6)
Severely obese (BMI >40)	180 (12.0)	11680 (6.9)	580 (10.4)	11110 (6.8)	100 (7.5)	11820 (6.9)
PPI use	1370 (91.3)	137520 (81.1)	5110 (91.4)	137380 (83.6)	1210 (90.3)	143110 (83.9)

Table 1. Baseline characteristics for Barrett's esophagus in patients with and without SLE, RA, and SjS.

Barrett's Esophagus			
	SLE (%)	No SLE (%)	Odds Ratio (95% CI)
Overall	1500 (1.25)	169660 (0.54)	2.33 (2.21-2.45)
Male	290 (1.93)	92850 (0.66)	2.95 (2.62-3.31)
Female	1210 (1.15)	76170 (0.44)	2.62 (2.47-2.78)
Tobacco use	370 (2.8)	31190 (2.9)	0.95 (0.85-1.05)
No tobacco use	1130 (1.1)	138470 (0.5)	2.33 (2.20-2.48)
	RA (%)	No RA (%)	Odds ratio (95% CI)
Overall	5590 (1.5)	164360 (0.5)	2.88 (2.80-2.96)
Male	2020 (2.2)	90690 (0.7)	3.38 (3.23-3.53)
Female	3560 (1.3)	73020 (0.4)	3.00 (2.91-3.11)
Tobacco use	1660 (3.2)	29530 (2.9)	1.11 (1.06-1.17)
No tobacco use	3930 (1.2)	124830 (0.4)	2.77 (2.68-2.86)
	SjS (%)	No SjS (%)	Odds ratio (95% CI)
Overall	1340 (1.7)	170630 (0.5)	3.24 (3.07-3.42)
Male	220 (2.6)	93410 (0.7)	3.99 (3.49-4.57)
Female	1110 (1.6)	76610 (0.4)	3.73 (3.52-3.96)
Tobacco use	320 (3.5)	31450 (2.9)	1.20 (1.07-1.34)
No tobacco use	1020 (1.5)	139180 (0.5)	3.28 (3.09-3.49)

Table 2. Prevalence and odds ratios (OR) for BE in patients with and without SLE, RA, and SjS (all p<0.001)

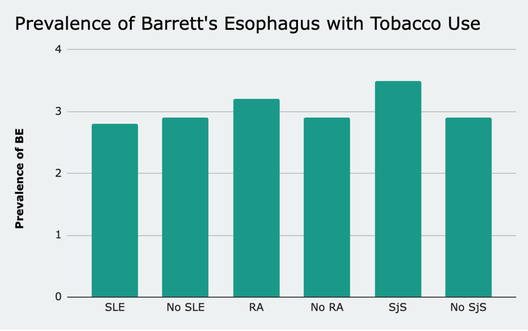

Figure 1.

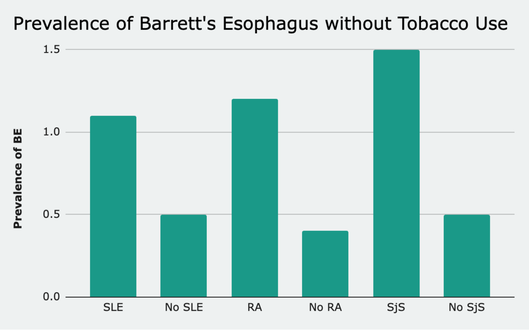

Figure 2.

Results

- 31,502,430 patients identified in the database
- 120,040 cases of SLE, 371,640 cases of RA, and 77,010 cases of SjS
- There was a greater female to male ratio for all three autoimmune diseases
- Prevalence of Barrett's Esophagus
  - SLE was 1.3% (OR 2.33)
  - RA was 1.5% (OR 2.88)
  - SjS was 1.7% (OR 3.24)
- Risk of BE with tobacco use was comparable
  - SLE OR 0.95
  - RA OR1.11
  - SjS OR 1.20
- Risk of BE without tobacco use was higher
  - SLE OR 2.33
  - RA OR 2.77
  - SjS OR 3.28

Conclusions

- Patients with SLE, RA, and SjS had a significant association with BE after a diagnosis of the autoimmune disease
- Association was stronger in patients with each autoimmune disease without tobacco use
- A prospective study using biopsy-identified Barrett's esophagus would give a more accurate association between these autoimmune disease and BE
- Limitations
  - Diagnoses were not necessarily biopsy-proven

Contact
Akash Khurana
University Hospitals – Cleveland Medical Center
Department of Medicine
Akash.Khurana@uhhospitals.org