A Low Acid Diet Rarely Normalizes Pathologic Gastroesophageal Reflux Disease

Anthony Skryd, MD[1], Rita Knotts, MD, MSc[2], Abraham Khan, MD[2]
Department of Medicine, NYU Langone Health
Center for Esophageal Health, Division of Gastroenterology & Hepatology, Department of Medicine, NYU Langone Health

Introduction

- Prolonged esophageal 96-hour wireless pH monitoring can reliably diagnose pathologic gastroesophageal reflux disease (GERD).
- The longer duration of study allows time to evaluate dietary influence on esophageal acid exposure time (AET).
- There are few studies investigating acidity in the diet and influence on AET.

Objective

- Evaluate the differences in the quantity of acid reflux during days of high acid and low acid diets during prolonged wireless pH studies.

Methods

- 96 patients underwent esophageal 96-hour wireless pH monitoring for evaluation of potential GERD.
- The patients were educated on foods of high and low acidity and instructed to consume a high acid diet on one day and a low acid diet on a separate day during the recording period.
- Each patient maintained a food diary which was reviewed by a physician for accuracy.
- Patients were considered to have pathologic GERD for an average esophageal AET >6% and considered normal on an individual day for an esophageal AET <4%.
- Statistical relationships between proportions were evaluated by Fisher's exact test and continuous variables were compared using t-tests. Box plots were used to graphically represent the spread of data.

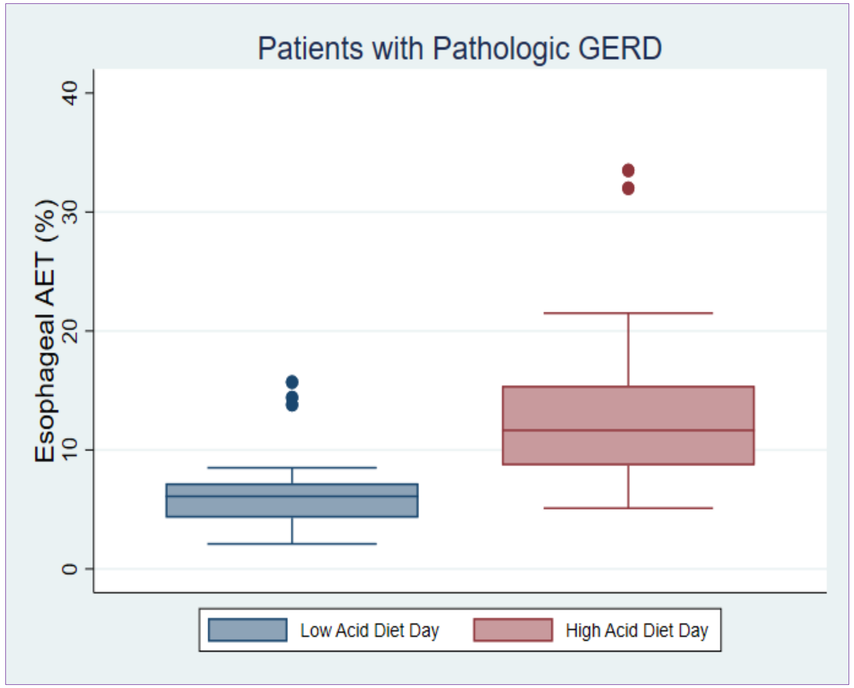
Table 1

	Total	Pathologic GERD (n=30)	Negative for Pathologic GERD (n=66)	P-Value
Male Sex, n (%)	47 (48.96)	19 (63.33)	28 (59.57)	0.078
Age, mean (SD)	48.21 (14.37)	47.27 (14.60)	48.63 (14.35)	0.67
BMI, mean (SD)	25.51 (5.61)	28.49 (5.49)	24.16 (5.15)	<0.01
Presence of laryngopharyngeal reflux symptoms, (%)	33 (39.290)	11 (39.29)	22(39.29)	1.0
Mean number of most common symptom, (SD)	45.77 (56.41)	52.79 (12.37)	42.27 (51.59)	0.42
AET on high acid diet day highest, n (%)	66 (68.75)	30 (100)	36 (54.55)	<0.001
Normal pH on low acid diet day, n (%)	33 (34.38)	4 (13.33)	29 (43.94)	0.005
AET on low acid diet day lowest, (%)	21 (41.18)	11 (64.71)	10 (29.41)	0.03
Mean AET on high acid, (SD)	6.99 (6.39)	13.03 (6.89)	4.24 (3.66)	<0.01
Mean AET on low acid, (SD)	3.53 (3.54)	6.93 (1.05)	1.83 (1.47)	<0.01

Results

1. Pathologic GERD was found in 30 patients (31.3%) of which the majority (64.7%) recorded their lowest AET on their low acid diet day (Table 1).
2. 13.3% of patients with pathologic GERD achieved normal acid reflux on their low acid diet day.
3. The highest AET occurred on the high acid diet day for all 30 patients (100%) with pathologic GERD and 36 (54.55%) of the 66 patients without pathologic GERD.
4. The low acid diet day reduced mean AET from 13% to 6.9% in those with pathologic GERD (Figure 1) and from 4.2% to 1.8% in patients negative for pathologic GERD.
5. Average body mass index (BMI) was higher in patients with pathologic GERD, while age, sex, and number of the most common reflux symptom did not differ between each group.

Figure 1



Conclusions

- Acid reflux is reduced overall with a low acid diet in patients with and without pathologic GERD.
- The majority of patients with pathologic GERD experience their lowest amount of acid reflux during a day of a low acid diet.
- Only a small minority of patients with pathologic GERD will normalize their acid reflux with a low acid diet.