We used Bayes' rule, which provides a useful method for combining new information with a prior probability, to calculate the posterior probability that nocturnal gastric or esophageal acidity with IR-OME was lower than that with ESO or LAN. For these calculations we used a flat prior probability that considered all values from 0 to 1.00 to be equally probable.
Results: The table below shows that with integrated acidity, the posterior probability that nocturnal gastric and esophageal acidity are lower with IR-OME than with ESO or LAN is at least 0.96. With time pH < 4, the posterior probabilities that IR-OME < LAN were the same as those with integrated acidity. On the other hand, with time pH < 4, the posterior probabilities that IR-OME < ESO were the lower than those with integrated acidity.
Conclusion: Thus, in GERD patients treated with a PPI, there is a high probability that during the nocturnal period, both gastric and esophageal acidity will be lower with IR-OME than with ESO or LAN.

Posterior Probabilities of Lower Nocturnal Acidity with IR-OME

	IR-OME < LAN		IR-OME < ESO	
Measure	Gastric Acidity	Esoph. Acidity	Gastric Acidity	Esoph. Acidity
Integrat. Acidity	1.00	0.98	1.00	0.96
Time pH < 4	1.00	0.98	0.61	0.80

4

Ineffective Esophageal Motility (IEM) and Prolonged Nocturnal Gastroesophageal Acid Reflux

Monjur Ahmed, MD, Girma Meshesha, MD, Frezgi Kebreab, MD, Fikadu Gebreyes, MD. Internal Medicine, Marshall University, Huntington, WV.*

Purpose: To find out whether prolonged (>5 minutes) nocturnal gastroesophageal acid reflux is more prevalent in patients with IEM
Methods: We conducted a retrospective database review of esophageal manometry and 24 hour pH studies of patients with esophageal and/or GERD symptoms evaluated at our University Medical Center. We analyzed database from June 2003 to May 2006 and among 400 records reviewed 187 met the study criteria and considered eligible for this analysis. Prolonged nocturnal gastroesophageal acid reflux was defined as a distal esophageal pH < 4 for more than 5 minutes recorded on the ambulatory pH monitor between the hours of 10 pm and 6 am. IEM was defined as low (<30 mm Hg) amplitude or non-transmitted contractions in ≥30% of 10 wet swallows in the distal esophagus.
All patients irrespective of age over 18 years, sex and any racial background that had esophageal manometry and 24 hour esophageal pH study were included in the study. A comparison was made between groups with IEM and normal manometry with respect to the prevalence of prolonged distal esophageal acid exposure between the hours of 10 pm and 6 am.
Results: We found that 163 patients had normal esophageal manometry and out of them 84 patients (51.53%) had prolonged nocturnal distal esophageal acid reflux. On other hand, 24 patients had ineffective esophageal motility and out of them 16 patients (66.66%) had prolonged nocturnal distal esophageal acid reflux. Although the frequency of prolonged nocturnal distal esophageal acid reflux appeared higher in patients with IEM as compared to patients with normal esophageal motility, this difference did not reach statistical significance ($P = 0.16$).
Conclusion: This study clearly shows that prolonged nocturnal gastroesophageal acid reflux can be present in patients with normal esophageal motility as well as in patients with ineffective esophageal motility. Our study did not show any significant difference in the prevalence of prolonged nocturnal gastroesophageal acid reflux in patients with and without ineffective esophageal motility. By analyzing the data from this cohort of patients, we can conclude that IEM does not play a very significant role in causing prolonged nocturnal gastroesophageal acid reflux. There may be other factors which could be responsible for prolonged nocturnal GERD.

5

Photodynamic Therapy Decreases DNA Content Abnormalities in Residual Non-Dysplastic Barrett's Esophagus

Weitian Liu, MD, Jason L. Hornick, MD, Robert D. Odze, MD, Mari Mino-Kenudson, MD, Gregory Y. Lauwers, MD, Raj K. Goyal, MD. Gastroenterology, Hepaptology and Endoscopy; Pathology, Brigham and Women's Hospital, Harvard Medical School (HMS), Boston, MA; Pathology, Massachusetts General Hospital, HMS, Boston, MA and Medicine, Veterans Affairs Medical Center, HMS, West Roxbury, MA.*

Purpose: Photodynamic therapy (PDT) has been used for the treatment of Barrett's esophagus (BE) with high grade dysplasia (HGD) or early adenocarcinoma (AC). After PDT, some patients still have residual surface BE (SBE) and/or buried BE (BBE) underlying neosquamous epithelium. The neoplastic potential of residual SBE and BBE post-PDT is unknown.
Methods: 52 BE patients with HGD or early AC were treated with PDT. Pre-PDT and post-PDT biopsies were performed. 22 matched pre- and post-PDT non-dysplastic BE samples were retrieved from 11 patients for high fidelity DNA histogram analysis. DNA content changes were compared between pre-PDT SBE, post-PDT SBE and BBE samples. DNA index > 1.1 was considered aneuploid.
Results: Of the 11 pre-PDT SBE samples, 3 were diploid and 8 were aneuploid (Table 1). In the 3 patients with pre-PDT SBE diploidy, the post-PDT residual SBE and BBE samples were also diploid. Interestingly, in the 8 patients with pre-PDT SBE aneuploidy, all the post-PDT BBE and 5 post-PDT SBE samples were diploid; 2 post-PDT SBE samples remained aneuploid, and 1 was not analyzed because of insufficient tissue.
Conclusion: Compared to pre-PDT BE, post-PDT BE shows significantly less frequent DNA content abnormalities, suggesting that PDT may have a preferential destructive effect on aneuploid cells. This indicates that the post-PDT residual BE, both surface and buried, may have a lower neoplastic potential than pre-PDT BE.

DNA content changes in non-dysplastic Barrett's esophagus before and after photodynamic therapy

Case	Pre-PDT SBE DI	Post-PDT SBE DI	Post-PDT BBE DI
Case 1	1.08	1.06	1.06
Case 2	1.08	1.03	0.98
Case 3	1.03	NP	1.02
Case 4	1.20	1.00	1.05
Case 5	1.27	1.07	1.08
Case 6	1.26	0.93	1.02
Case 7	1.27	NP	1.09
Case 8	1.20	1.06	0.99
Case 9	1.11	1.22	1.08
Case 10	1.25	1.14	0.98
Case 11	1.36	0.98	0.99
Mean ± SD	1.19 ± 0.10	1.05 ± 0.09	1.05 ± 0.04

PDT = photodynamic therapy SBE = surface Barrett's esophagus BBE = buried Barrett's esophagus DI = DNA index NP = not performed

6

The Basic Factor in the Genesis of GERD

Daccak Munzer, FACG. Emeritus Professor of Medicine, Houston, TX.*

Purpose: One of the main aims of surgical treatment of gastroesophageal reflux disease (GERD) is a gastropexy restoring the acute angle of His (AH). Most studies attribute GERD to some incompetence of the cardia, deficient esophageal clearing, delayed gastric emptying and transient relaxation of the lower esophageal sphincter (LES).
In the fifties and the sixties, primary importance was attributed to whether AH was acute, preventing the reflux, or obtuse, facilitating and predisposing to this recurrent regurgitation.