

ASSESSMENT OF THE ACCURACY OF A CLINICAL RISK PREDICTION (KUNZMANN) SCORE 5 YEARS PRIOR TO BARRETT'S ESOPHAGUS AND ESOPHAGEAL ADENOCARCINOMA DIAGNOSIS: RESULTS FROM A LARGE POPULATION BASED DATABASE

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INTRODUCTION

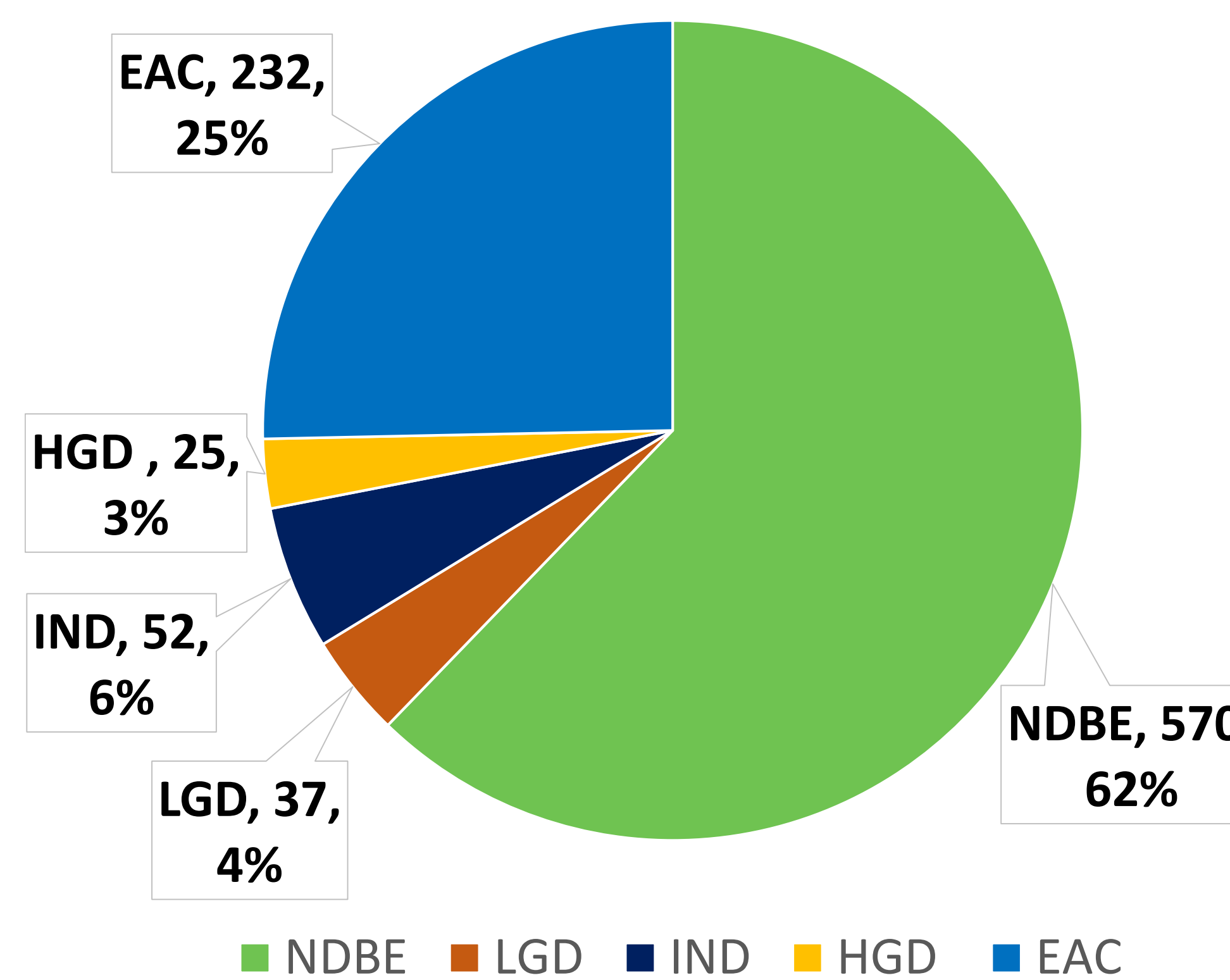
- Barrett's esophagus (BE) is the only known precursor for esophageal adenocarcinoma (EAC), a malignancy with poor 5-year survival
- Screening for BE is emphasized in those with risk factors especially with advent of multiple novel minimally invasive techniques but assessing BE/EAC risk remains challenging.
- The Kunzmann score is a composite score based on age, gender, smoking history, presence of esophageal conditions (such as heartburn), and BMI to screen for BE/EAC.
- We assessed the ability of this tool to predict BE/EAC risk 5 years prior to BE/EAC diagnosis in a large population-based database

METHODS

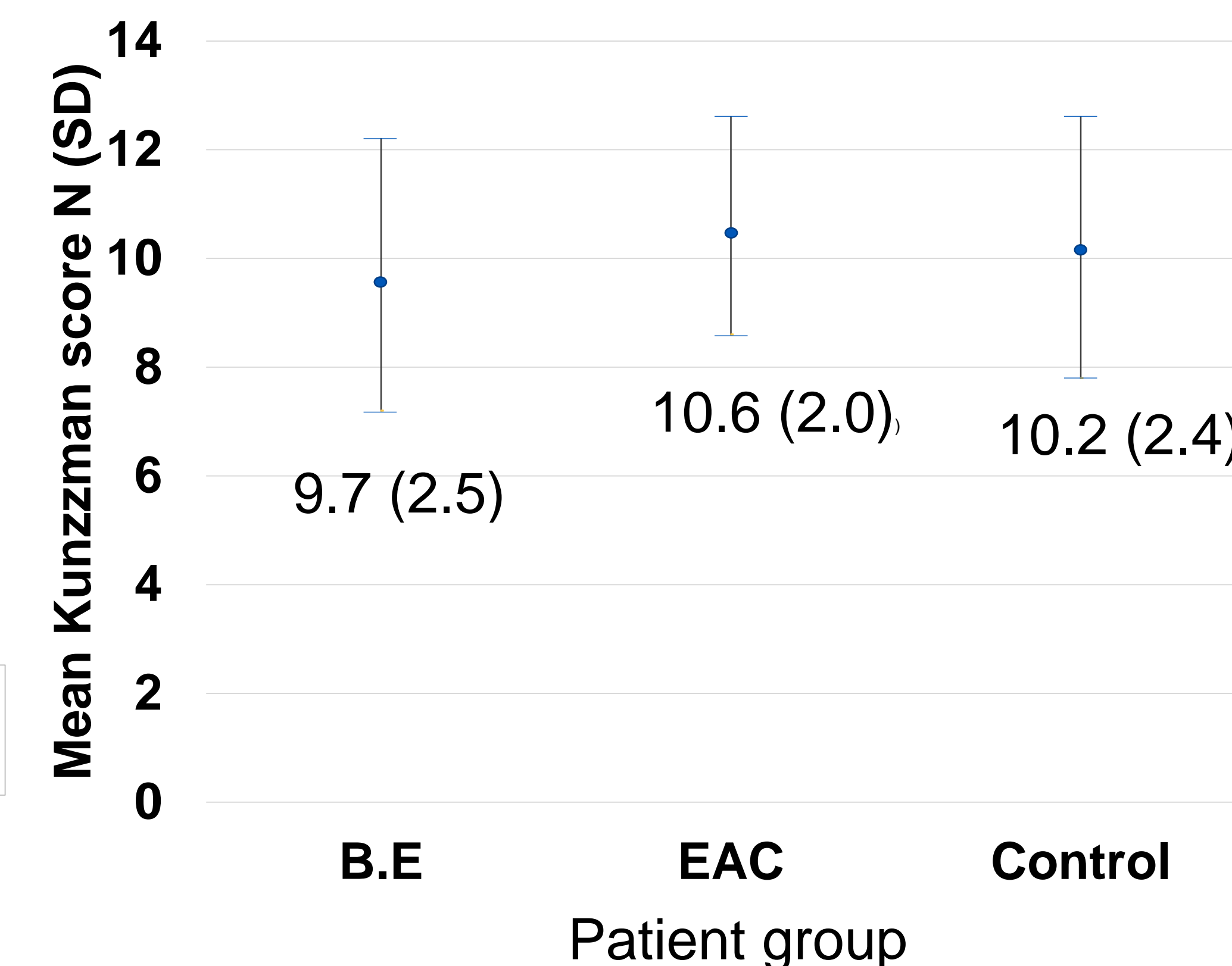
- Appropriate ICD 9 and 10 codes were used to identify incident cases of BE/EAC from 1977-2020 using Rochester epidemiology project (REP) database
- Endoscopic evidence of at least 1 cm of salmon colored mucosa in the tubular esophagus and presence of intestinal metaplasia on endoscopic biopsies were assessed to confirm BE diagnosis
- We also identified non-BE/EAC controls, and endoscopic reports were reviewed to exclude BE/EAC findings in these patients.
- We compared the Kunzmann risk prediction scores between BE patients and non-BE controls at data points obtained 5 (±1) years prior to BE diagnosis.
- This score has previously been reported to have a sensitivity and specificity for EAC of 77.5% and 70.5%, respectively, utilizing a cut off score of 8.

TABLE 1: BASELINE CHARACTERISTICS

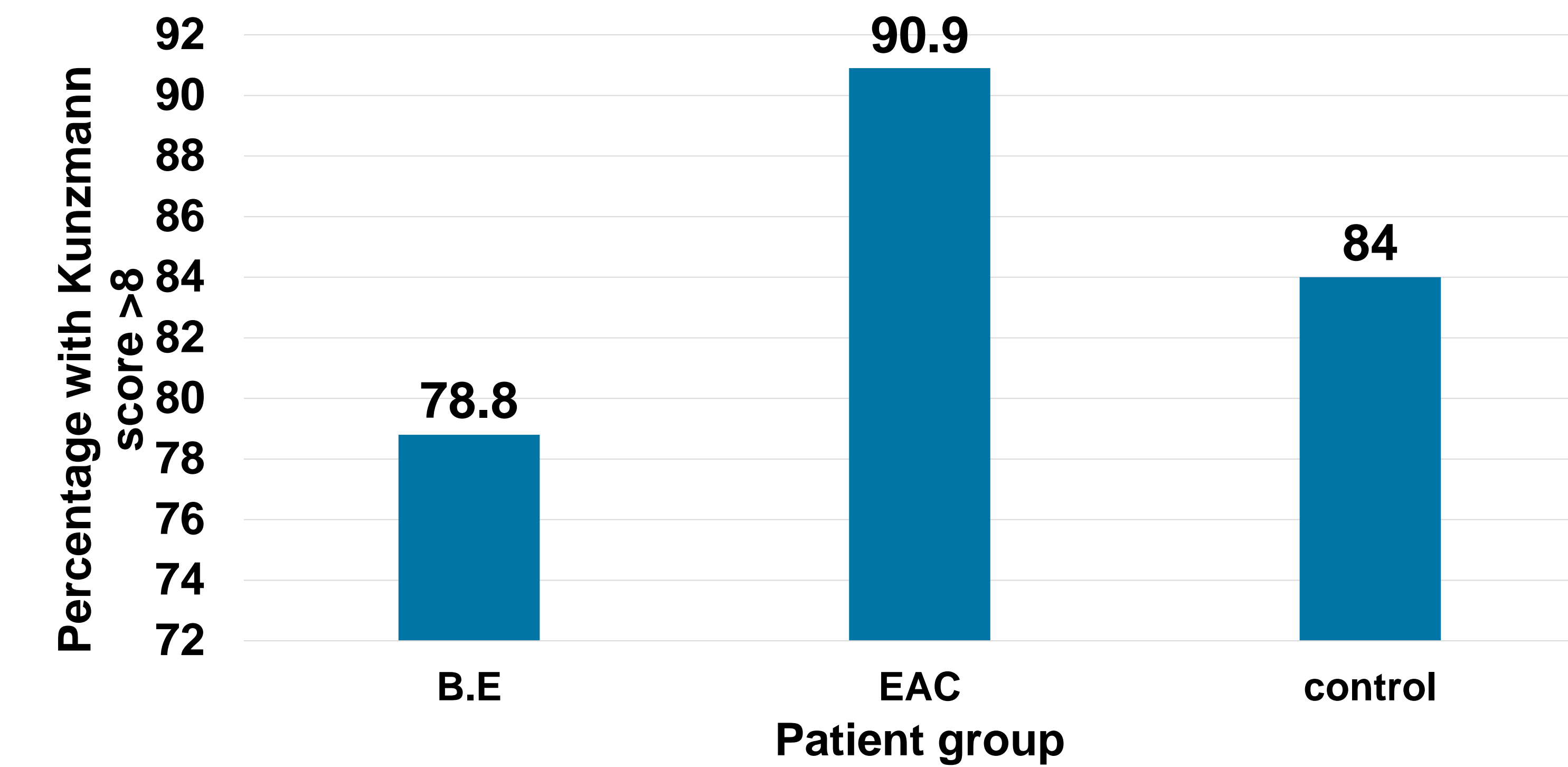
| | BE (N=684) | EAC (N=232) | Endoscopy Negative Controls (N=100) | |
|------------------------------------|-------------|--------------|-------------------------------------|-------|
| Age, Mean (SD) years | 61.8 (13.7) | 65.6 (11.7)* | 65.9 (13.8) | <0.01 |
| Male, N (%) | 490 (71.6%) | 201 (86.6%)* | 66 (66.0%) | <0.01 |
| White race, N (%) | 620 (90.6%) | 211 (90.9%) | 96 (96.0%) | 0.5 |
| BMI, mean (SD) | 30.3 (6.0) | 30.3 (6.2) | 30.5 (6.1) | 1.0 |
| Never smokers, N (%) | 248 (36.5%) | 61 (26.3%)* | 40 (40.0%) | 0.04 |
| Baseline BE length (cm), mean (SD) | 4.0 (3.3) | 5.4 (3.1)* | -- | -- |
| Hiatal hernia, N (%) | 459 (67.1%) | 68 (29.3%)* | 55 (55.0%) | <0.01 |
| History of GERD, N (%) | 304 (44.4%) | 85 (50.3%) | 94 (94.0.0%) | -- |



Graph 1. Pie chart depicting distribution of BE grade among controls



Graph 2. Plot chart depicting mean Kunzmann score among BE/EAC cases and controls



Graph 3. Bar-chart demonstrating percentage of cases and controls with Kunzmann score >8

RESULTS & CONCLUSIONS

- The mean Kunzmann score 5 years prior to diagnosis was significantly higher in the EAC group (10.6; SD: 2.0) compared to those with baseline BE (9.7; SD: 2.5) and controls (10.2; SD: 2.5; p <0.01).
- Furthermore, the percentage of patients with a Kunzmann score greater than 8 at 5 years prior to diagnosis was highest in the EAC group (90.9%) compared to the baseline BE (78.8%) and control (83.0%; p <0.01) groups
- Utilizing a cut-off score of 8, the Kunzmann score at 5-years prior to diagnosis demonstrated a sensitivity of 84.0% and specificity of 18.1% for the diagnosis of BE/EAC, and demonstrated a sensitivity of 79.5% and specificity of 9.1% for the diagnosis of EAC alone.
- The Kunzmann score demonstrated reasonable sensitivity to predict BE/EAC at 5 years prior to diagnosis, though specificity was quite low. Its utility for predicting BE/EAC risk needs to be further evaluated.

REFERENCES: Kunzmann AT, Thrift AP, Cardwell CR, et al. Model for Identifying Individuals at Risk for Esophageal Adenocarcinoma. *Clin Gastroenterol Hepatol.* 2018;16(8):1229-1236.e4. doi:10.1016/j.cgh.2018.03.01