IDENTIFYING PREDICTORS OF DIFFICULT INTUBATION AMONG OBESE ORAL SURGICAL PATIENTS

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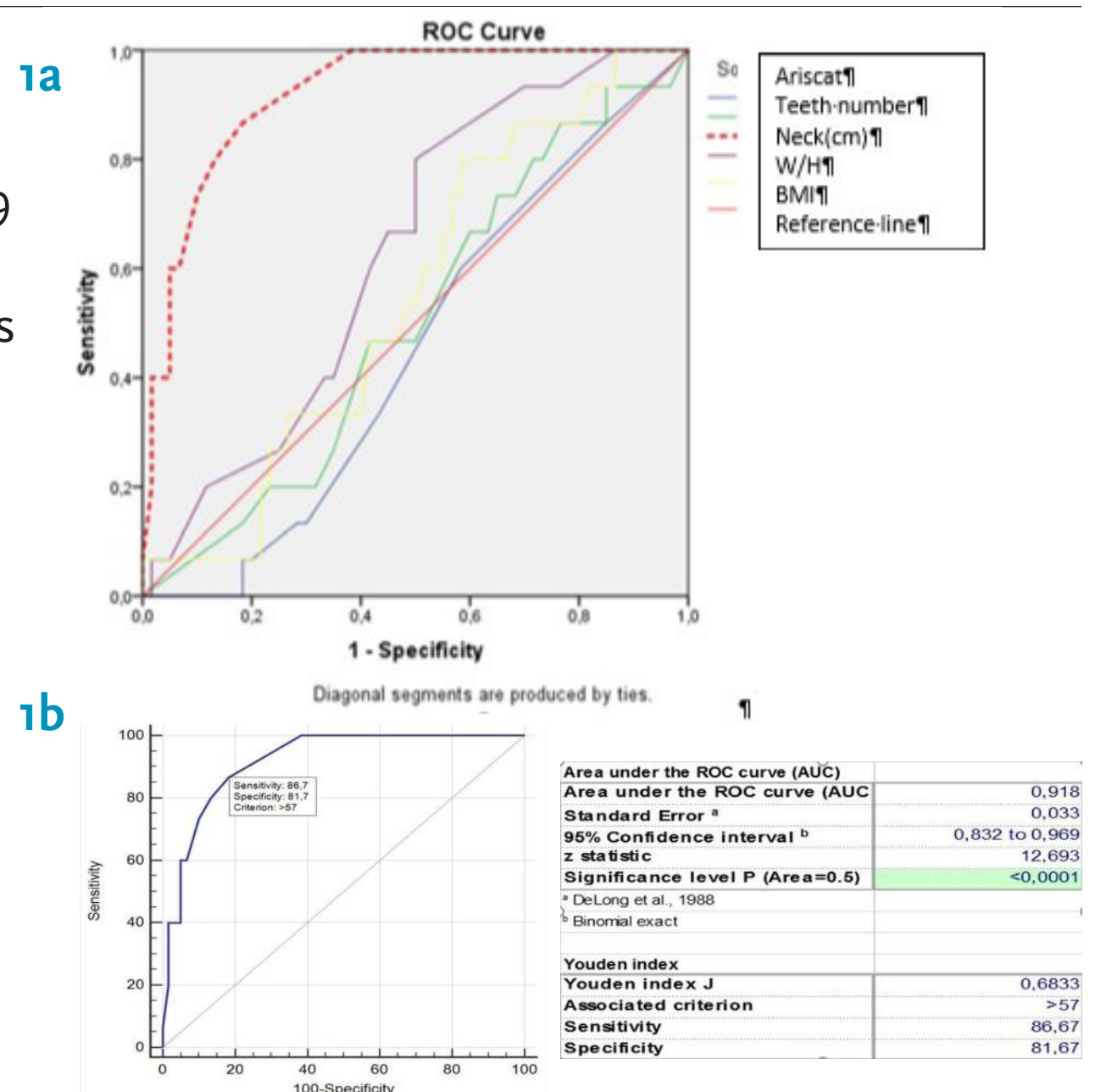
1. INTRODUCTION:

- Obesity, defined as body mass index (BMI) between 30 and 39.9 kg/m², and extreme obesity, with BMI more than 40 kg/m² is a multisystem, chronic disorder associated with a significant increase in perioperative complications[1].
- Obese patients undergoing oral surgery may provide a unique set of anesthestic challenges associated with airway management[2].
- The aim of the study was to evaluate possible predictors of difficult intubation among obese patients scheduled for oral surgical procedures under general anesthesia.

2. PATIENTS AND METHODS:

- This was an explorative single-center prospective observational study.
- Following ethical approval and signed written informed consent, 75 obese patients (30-65 year old and ASA II-III) undergoing oral surgery were enrolled.
- The number of front teeth (incisors and canines), neck circumference (NC), waist-to-hip (W/H) ratio, BMI and the risk for postoperative pulmonary complications(PPC) determineted by ARISCAT score was assessed[3].
- Difficult intubation was defined as it was possible after >2 attempts and/or using alternative techniques: Mc Coy laryngoscope, Gum elastic Bougi, fiber bronchoscope or Bonfils and assessed by two indpended investigators.
- Receiver operating curve (ROC) analyses were performed to identify predictors of difficult intubation and their cut-off values.

3. RESULTS AND DISCUSSION:

- The average BMI was 34.6 (SD 3.6), with 42 males. Average waist to hip (W/H) ratio was 1.1 (women 0.99 +/- 0.19, males 1.11 +/- 0.18). The mean value of the NC was 54.2 (SD 6.9) cm, significantly higher in males (p = 0.003). Patients did not have increased risk of PPC (mean Ariscat score 9, range 0-31).
- Difficult intubation was observed in 15 (20%) patients (9.3% women, 10.7% males, p=0,72) – conventional intubation possible in all patients.
- ROC analysis showed that values of NC above 57 cm had 86.7% sensitivity and 81.7% specificity in prediction of difficult intubation (area under the curve [AUC] = 0.918 (Figure 1a, 1b), whereas other parameters showed no significant prediction.

Area under the ROC curve (AUC)	
Area under the ROC curve (AUC)	0,918
Standard Error [a]	0,033
95% Confidence interval [b]	0,832 to 0,969
z statistic	12,693
Significance level P (Area=0.5)	<0,0001
[a] DeLong et al., 1988	
[b] Binomial exact	
Youden index	
Youden index J	0,6833
Associated criterion	>57
Sensitivity	86,67
Specificity	81,67

4. CONCLUSION:

- In our population of obese patients undergoing oral surgery we found that a neck circumference above 57 cm had high sensitivity and specificity in the prediction of difficult intubation.
- We recommend routine measurement of neck circumference in obese patients during preoperative assessment.

References: 1.Milanović SM.Coll Antropol 2012; 36: 71–6.; 2.Marciani RD.Oral Surgery, Oral Med Oral Pathol Oral Radiol Endodontology 2004; 98: 10; 3.Canet J.Anesthesiology. 2010; 113: 1338–50.

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