**Introduction:** Patients routinely receive IV sedation and supplemental oxygen (O2) via nasal cannula (NC) during upper GI endoscopy (EGD). Nasal cannula becomes ineffective in delivering O2 when the mouth is kept open by a bite block. Oversedation and/or airway obstruction may cause severe desaturation.

Obese patients have increased risk of respiratory complications due to airway anatomy, obstructive sleep apnea, decreased FRC and high O2 consumption.

A simple plastic sheet was shown to improve oxygenation in sedated patients by transforming a NC to a face tent (TSE “Mask”) during EGD. We examined its effectiveness in improving oxygenation in obese patients during EGD.

**METHODS:** This retrospective review of 344 patients undergoing EGD (EGD, EUS, ERCP, EGD/Colonoscopy or PEG) identified 2 groups. Group 1 (NC, n=76) received NC O2. Group 2 (TM, n=268) received NC O2 and a TSE “Mask” from the start using a clean plastic specimen bag 1-3. It covered patient’s eyes, nose and mouth.

Monitors included ECG, BP cuff, pulse oximetry, capnography and oximetry. Patients received NC O2 (3-5 l/min, or higher) and only IV propofol. Data collected for comparison included age, height, weight, ASA Physical Status Classification (using 1 for ASA I, 2 for ASA II, 3 for ASA III and 4 for ASA IV), baseline O2 flow rate, FiO2, O2 Sat every 5 min, the lowest O2 Sat, severe desaturation (O2 Sat <85%), total amount of propofol, procedure duration, assisted bag-mask ventilation and FI O2.

Student t-test and the Chi Square test were used for analysis. A p value <0.05 was considered as significant. Data are presented as Mean±S.D.

**RESULTS:** Among non-obese patients (BMI<30), there were no differences in age (NC: 61±19 yrs; TM: 61±17), BMI (NC: 24.5±3.6; TM: 24.2±3.5), ASA Physical status (NC: 2.2±0.7; TM: 2.3±0.8), room air (RA) O2 Sat (98±2%), duration (NC: 30±19 min; TM: 31±20) and propofol dosage (NC: 206±83 ug/kg/min; TM: 215±94) between groups.

There were significant differences in the highest O2 flow (NC: 5.3±2.4 l/min; TM: 4.6±1.1), O2 Sat after 5 min with O2 (NC: 99±1%; TM: 100±1%), the lowest O2 Sat (NC: 89±11%; TM: 97±3%) (Fig. 1), severe Desat (O2 Sat <85%) (NC: 16/57; TM: 0/182) and assisted bag-mask ventilation (NC: 7/57; TM: 0/182).

In 28 NC patients, their NCs were converted to TSE “Masks” due to severe desaturation (O2 Sat: Non-Obese: 81±11%, n=22; Obese: 78±16%, n=6). O2 Sat was greatly improved 5 and 10 min after adding TM (Non-Obese: 92±6%, 95±4%; Obese: 95±5%, 97±4%).

FiO2 was higher in TM patients (0.49±0.13) than NC patients (0.30±0.08).

**DISCUSSION:** These data show that TSE “Mask” improves oxygenation and reduces severe desaturation and the need of assisted bag-mask ventilation in both non-obese and obese patients during EGD.

This simple face tent takes less than 10 seconds to prepare at no cost. It may have great impact on patient safety in obese patients and should be routinely used during EGD.

**REFERENCES:**
1. James Tse, Shaul Cohen and Paul Stricker: A simple and effective technique to increase oxygenation for patients with nasal cannulae during upper endoscopy. Anesthesiology 102: 484, 2005;
3. www.TSEMask.com