Appendix 1 Variables collected

Variables collected were:

1) Demographic data: Gender, age (years), pre- and post-operative weight (kg), Height (cm), BMI (kg/m^2).
2) Sleep data: Sleep studies were performed at home and were either two nights of pulse oximetry using a Pulsox 300i (Konica Minolta sensing Inc, Hachioji, Tokyo, Japan) or a respiratory polygraphy for a single night using an ApneaLink (ResMed, San Diego, California). If there was any clinical suspicion of obesity hypoventilation syndrome (OHS), individuals were referred for an overnight transcutaneous capnography monitoring using TCM5 FLEX (Radiometer Ltd, Crawley, England). Data collected and calculated from the sleep study were:
   1. 3% and 4% oxygen desaturation index (ODI, events/hour).
   2. Mean oxygen saturations (SpO_2, %).
   3. Time with saturations of SpO_2 <90% as a % of the recorded sleep time (T90).
   4. Epworth Sleep Score (ESS, points/24).
   5. Obstructive sleep apnoea (OSA) severity:
      i. Classified into no OSA (4% ODI <5 events/hour)
      ii. Mild (4% ODI 5–14.9 events/hour)
      iii. Moderate (4% ODI 15–29.9 events/hour)
      iv. Severe (4% ODI ≥30 events/hour)
   6. Pulse rise index (PRI): number of pulse rises >6 beats per minute (events/min).
   7. Treatment recommended by the sleep specialist analysing the sleep data:
      i. None required
      ii. Mandibular advancement device (MAD) for symptoms
      iii. Continuous positive airway pressure (CPAP) therapy
      iv. Extubation onto CPAP
      v. Referral for assessment to further investigate potential coexisting obesity hyperventilation syndrome
3) Co-morbidities: Hypertension, Depression and Anxiety, Type 2 Diabetes mellitus, Asthma, Chronic Obstructive Pulmonary Disease (COPD), gastro-oesophageal reflux disease (GORD).
4) Type of surgery:
   1. Roux-en-Y-gastric bypass (RYGB)
   2. Sleeve gastrectomy (SG)
   3. Gastric banding (GB)
   4. Gastric band removal (GB removal)
5) Post-operative complications (respiratory and non-respiratory) during the inpatient stay. They were classified according to the Clavien-Dindo Classification (34).
6) Maximal level of respiratory support required during inpatient stay. Data were excluded if there was no documentation of the respiratory status throughout the whole of the admission:
   1. No oxygen
   2. Nasal cannulae (oxygen supplied via nasal cannulae up to 6L per min of oxygen)
   3. Other oxygen (oxygen supplied via face mask, venturi mask, humidified circuit, or high-flow oxygen via nasal cannulae)
   4. CPAP
   5. Bilevel positive pressure ventilation/non-invasive ventilation (NIV)
   6. Intubation and ventilation (after post-operative extubation)

For patients already on CPAP or NIV following pre-operative screening, they were considered to require CPAP or NIV only if they used it for an indication other than their OSA or OHS (e.g., because of an acute respiratory failure due to an infection).

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7) Highest level of care:
   1. Intensive Care Unit/High Dependency Unit (level 2 or 3)
   2. General surgical ward (level 1)
8) Length of in-hospital stay (days).
9) Inpatient mortality.

References

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