ANAESTHESIA CHALLENGES IN BARIATRIC SURGERY.

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IN BARIATRIC

CASE HISTORY

38 year old male, resident of Pimpri, Pune came to Dr. D.Y Patil Medical College and Hospital with complaints of increased body weight since adoloscence.

History of Present Illness :

- The patient with a history of increased body weight since adolescence presented for evaluation for bariatric surgery.
- The patient gives history habitual snoring (as observed by his wife), waking unrefreshed, morning headaches, excessive day time sleepiness, impaired concentration, fatigue and breathlessness on physical activity.(NYHA Grade = 3) (METS =3).
- No h/o Chest pain, Palpitations, Breathlessless, Nocturnal choking, Memory problems, Regurgitation.
- No history of DM, hypertension, thyriod disorder,

Past History :

- No h/o Tuberculosis,Bronchial Asthma, Epilepsy, CVA, CAD, previous hospital admissions, previous surgery, Allergies.

Family History :

-History of obesity present in family.

Personal History:

Mixed diet, Adequate appetite ,Normal & regular bowel and bladder habits, Non-smoker and non-alcoholic ,Disturbed sleep.

General Examination :

- Patient is conscious, co-operative and well oriented, Heavy built. (Weight = 150 kg, Height = 171 cm, BMI = 51 kg/m2).

- Afebrile
- PR = 94 bpm, Regular
- BP = 134/82 mmHg, right brachial artery in supine position
- RR = 20 breaths/min, SPO2 on room air-97-98% in supine position.
- No pallor, Icterus, Cyanosis, Clubbing, Lymphadenopathy, Oedema

Airway examination :

- Double chin, heavy jaw, short neck.

- Mallampati class = III
- No loose/missing teeth
- Thyromental distance = 5.5 cm
- Sternomental distance = 10 cm
- Upper lip bite test = Grade 1
- Neck circumference = 36 cm
- Neck movements = limited (extension = 45-50 degrees, flexion = 15-20 degrees)
- No obvious swelling over the neck.

Systemic Examination :

- CNS = conscious, co-operative and well oriented.
- CVS = S1S2 heard normally, no murmurs.
- RS = large breast, no chest wall abnormalities, no swellings, dilated veins, scars, sinuses, skin appears normal,air entry bilaterally equal, no adventitious sounds.
- P/A = soft, non-tender, no guarding/rigidity.
- Waist circumference-110 cms.

Provisional Diagnosis :

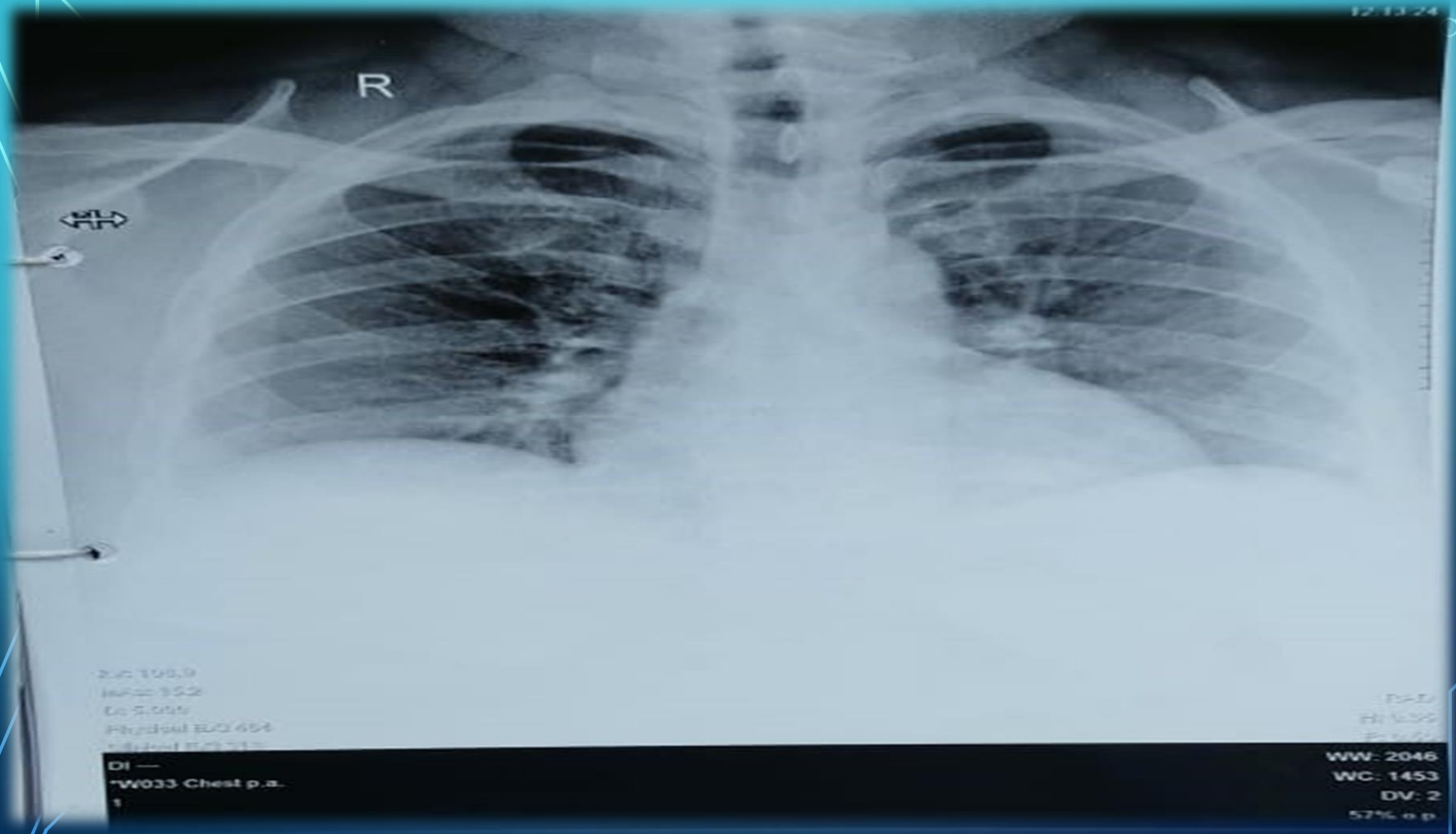
- A 38 year old male patient, case of morbid obesity posted for Bariatric surgery. (Laproscopic Mini Gastric Bypass).

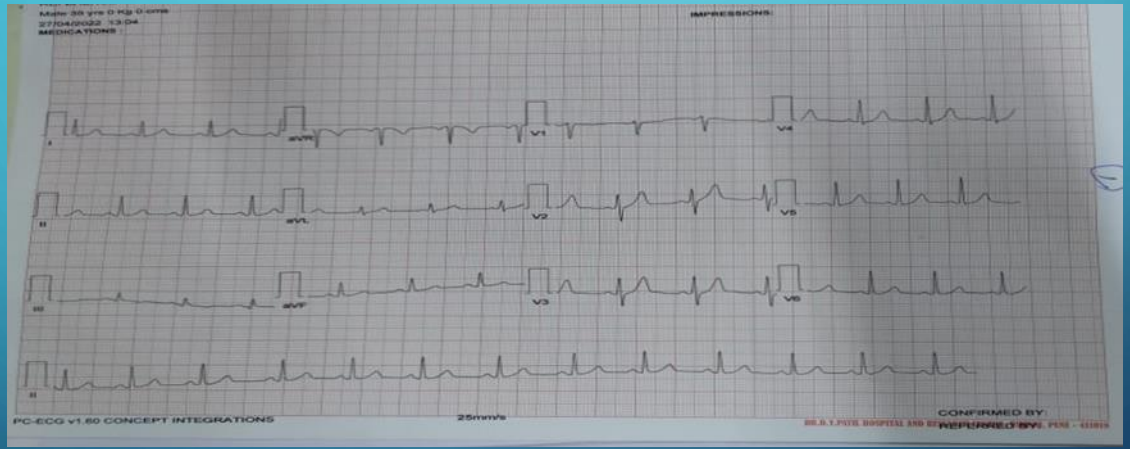
Investigations :

- Hb-13.10, TLC-11000, Platelets-3.61 lakhs.
- Serum electrolytes: (mmol/L) =
- sodium- 137, potassium-4.20, chloride-103.
- Serum Urea- 26 mg/dl
- Serum Creatinine- 0.77 mg/dl
- Total bilirubin-0.32 mg/dl,
- direct bilirubin-0.14 mg/dl,

  SGOT-32 U/L,SGPT-51 U/L ,

  ALP-75 U/L.
- PT/INR-10.80/0.96
- Serology- non reactive.
- Random blood sugars-94 mg/dl
- ECG-NSR, CXR- increase BVM.
- 2D ECHO –EF-60%, normal study
- Polysomnography suggested AHI of 5-6 (mild - moderate)


R
DI —
*W033 Chest p.a.
1
WW: 2046
WC: 1453
DV: 2
57% o p


IMPRESSIONS:
MEDICATIONS :
aVR
V1
V4
aVL
V2
V5
aVF
V3
V6
PC-ECG v1.60 CONCEPT INTEGRATIONS
25mm/s
CONFIRMED BY:

Preoperative Preparation :

Patient was given fitness for GA under ASA III

- Patient was explained about the procedure and associated risks.
- Written and informed consent taken.
- Adequate blood reserved.
- NBM status checked.
- Aspiration prophylaxis with a combination of IV Inj. Ranitidine (50mg), Inj. Metoclopramide (10mg) and Inj. Ondansetron (4 mg) given.
- Preoperatively patient was nebulized half an hour before surgery.
- Prophylactic antibiotic given after test dose.
- All the drugs were given according to Ideal body weight of the patient.

OT Preparation :

*Plan of anesthesia was **General Anesthesia** and OT was prepared accordingly.*

- ✓ Anaesthesia machine checked.
- ✓ Emergency airway cart prepared.
- ✓ All emergency drugs
- ✓ Working suction machine
- ✓ Videolarygoscope trolley
- ✓ Difficult airway trolley

INDUCTION:

- All standard monitors like -Pulse oximeter, ECG, Noninvasive Blood pressure (extralarge sized cuff), End-tidal carbon dioxide, nasal temperature probe were attached.
- An 18G intravenous line was secured in addition to a 20G and an infusion of crystalloid solution was started.

Patient Positioning : RAMP position from scapula to the head with padding of all pressure points.

Intubation:

Pre-oxygenated :100 % oxygen in head-up and 30 degrees Reverse Trendelenberg, with 5 number face mask.

Inj. Glycopyrolate 0.2 mg IV, Inj.Fentanyl 150 mcg IV premedication.

Inj.Etomidate 21.5 mg IV

Succinylcholine 120 mg, after confirming adequate ventilation, laryngoscopy was done with C-Mac laryngoscope and 8.5 cuffed ETT was passed over bougie.

Tube position confirmed with EtCO2, Air entry equal.

Loading dose of NDMR Inj.Cisatracurium 10.5 mg IV.

Inj.PCT 1g IV was given for pain management.

Volume control ventilation , Oxygen:Air (50:50) with Desflurane 6% inhalational agent.

External body warmer and pneumatic stockings were used.

Gastric obturator tube was inserted orally.

INTRAOPERATIVE :

- Intraoperative all vitals were stable.
- The saturation was maintained at 98-100% ,
- $EtCO_2$ between 34-38 ,
- Heart rate 72-88 per minute ,
- Blood pressure 110/80 mmHg to 130/88 mmHg

Extubation:

The surgery lasted for 2 hours duration after which…

Inj. Ondansetron 4 mg IV, Inj. Dexamethasone 8mg was given.

- Adequate suctioning and reversal of muscle relaxant was done using Inj. Neostigmine 3.5 mg + Inj. Glycopyrrolate 0.5 mg after the patient was awake and there was return of protective airway reflexes. No.7 naso-pharyngeal airway was kept in place and patient was extubated uneventfully.
- Patient was conscious ,obeying commands.
- The patient was then shifted to post operative recovery room for observation and better care.

Supplementary oxygenation with reverse Trendelenburg position.
-Adequate hydration with IV fluids given.
-Prophylaxis against DVT was continued.
-Antibiotics were continued.

Patient was monitored in postoperative recovery room for 2 hours and shifted to ward and was ambulated out of bed on the evening of surgery at 6pm.

Anaesthetic Considerations and challenges

-Difficult IV access.
-Inadequate size of the OT table.
-Factors responsible for difficult laryngoscopy and intubation :

- Large face & cheeks
- Large breasts
- Limited range of motion of head/neck/jaw
- Short thick neck
- High Mallampati score (III)
- Oxygen desaturation can be more rapid.
- Ventilation strategy for laparoscopic surgery and maintaining EtCO2.

- Predictors of difficult mask ventilation :

- BMI > 30 kg/m2
- Beard
- Age >57
- Snoring
- Limited jaw protrusion
- Abnormal neck anatomy
- Sleep apnoea
- Thyromental distance < 6cm
- No teeth

Pneumonic :

O - Obese
B - Beard
E - Elderly
S - Sleep apnoea
E - Edentulous

Discussion:

- Prevalence: Increasing steadily worldwide.
- Incidence: Worldwide : 20 to 30% of adults
- India : 10-15% of adults.
- Sixth most important risk factor for diseases worldwide.
- Associated with decrease in life expectancy.
- A challenge for anaesthesiologists.

TABLE 71-1 LEVELS OF RISK ASSOCIATED WITH INCREASING BODY MASS INDEX

Classification	BMI (kg/m²)	Risk of Developing Health Problems
Underweight	<18.5	Increased
Normal weight	18.5-24.9	Least
Overweight	25.0-29.9	Increased
Obese		
Class 1	30.0-34.9	High
Class 2	35.0-39.9	Very high
Class 3	40.0-49.9	Extremely high
Superobese	≥50	Exceedingly high

BMI, Body mass index.

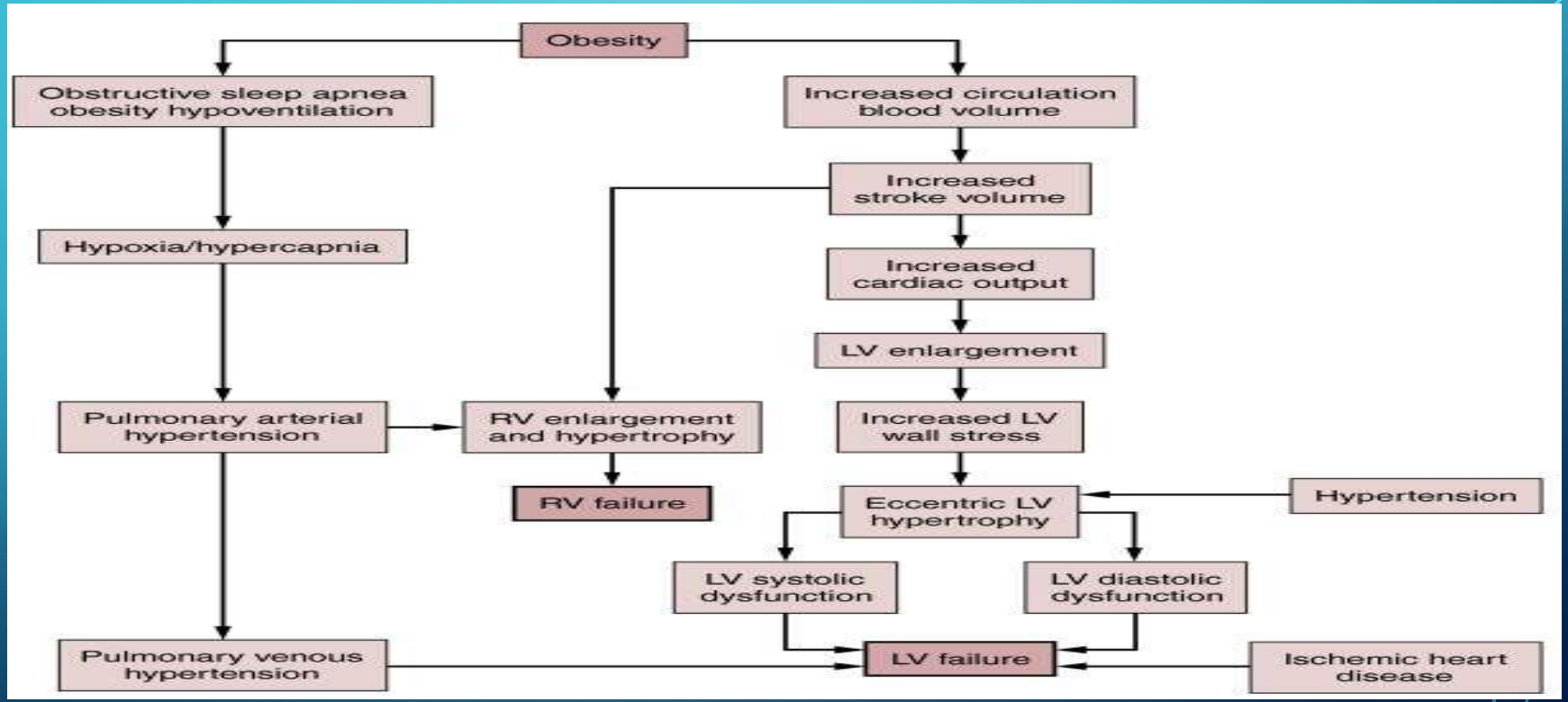
Obesity : Abnormally high amount of adipose tissue compared with lean muscle mass (Body weight > 20 % of IBW)

Morbid Obesity (MO) :

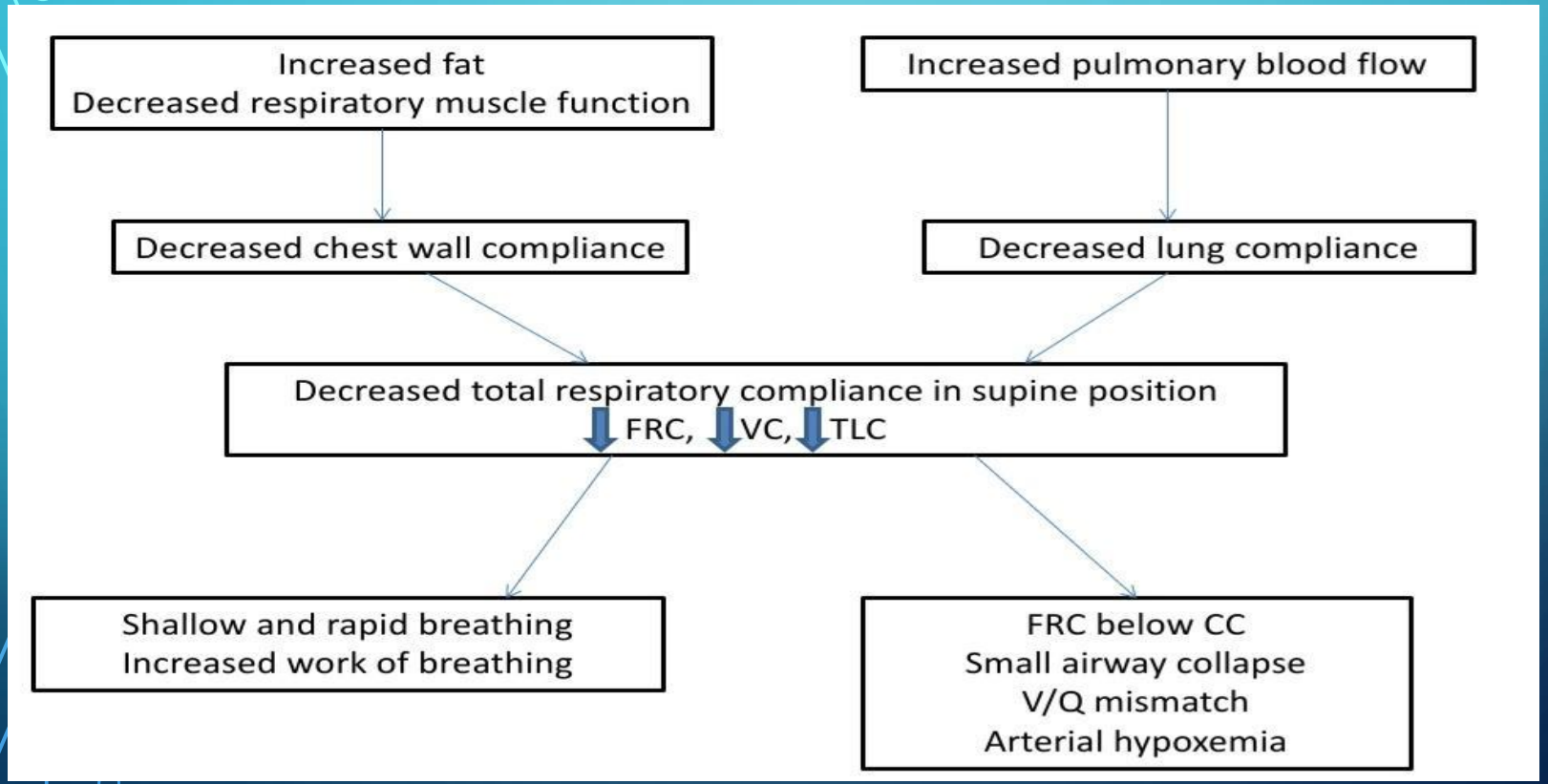
Body weight > twice IBW or IBW + 50kg

BMI is most commonly used quantifier.

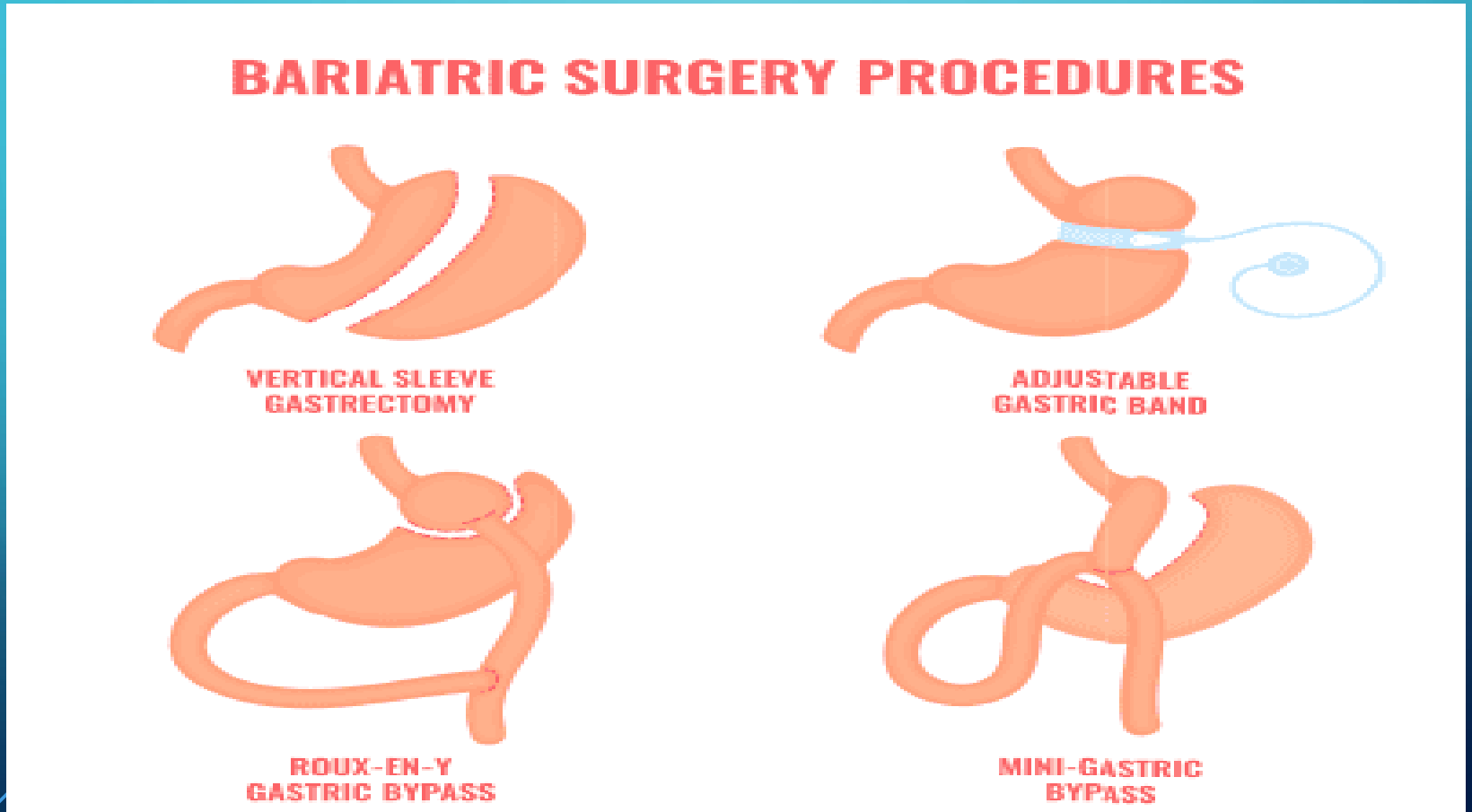
Effects on cardiovascular system:



Effects on Respiratory system

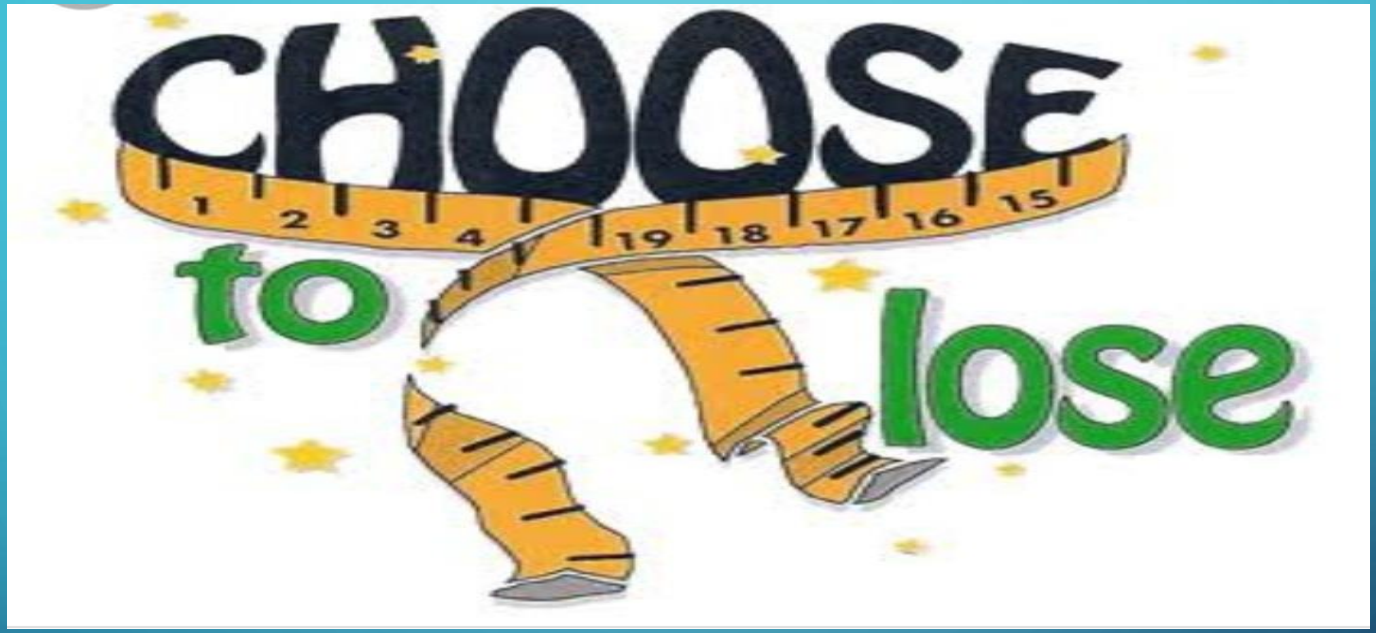


Types Of Bariatric Surgery :



Take home message…

- Detailed history and examination, investigation.
- Aspiration prophylaxis
- Minimal sedation
- Proper positioning
- Adequate preoxygenation
- Prepare for difficult airway
- Follow extubation criteria, recruitment manoeuver, RAMP position , reverse trendenlenberg.
- Arrange for CPAP and mechanical ventilation
- Adequate pain relief, DVT prophylaxis, early ambulation.



THANK YOU