

Pre-operative Assessment

Dr Will Dooley



Plan

- **Exam format**
- Structure for history and examination
- Options for investigations



Why is it important??

- **Commonly examined in Finals...**
- Reduce morbidity and mortality
- Reduce cancellations

How do you structure a pre-op assessment?

Please perform a pre-operative assessment on this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .

- History
- Examination
- Investigation
- Management



Communication Skills OSCE Station

Please **TAKE A HISTORY** from this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .



85yo for TURP

Mr Griffin has suffered **two "mini-strokes"** in the past two years, since which he taken **"blood thinning tablets"**. He has never had a heart attack and has had **no previous operations**. He has smoked **twenty cigarettes a day since aged 15**. He is a retired shopkeeper.

He lives in a **warden controlled** flat and has 'meals-on-wheels'. He can get around the home with a frame but is **limited by his breathing**. He states his breathing has been "bad for years" and he has a cough productive of clear sputum all year round. He states he gets a bad **acidic taste** when he ties his laces.



History structure

Current state

- **Baseline** / Recent condition

Past Medical History

- Especially cardiovascular and respiratory / sleep apnoea symptoms
- **Current control** of medical conditions

Past Surgical History / Previous anaesthetic

- **Any anaesthetic** or surgical complications

Drug history

- Including **allergies**

Family history

- Anaesthetic e.g. malignant hyperthermia

Social history

- Smoking
- Dependence
- **Exercise Tolerance**

Anaesthetic specifics

- Dentition / Dentures



| <i>Repeat Prescription</i> | | |
|--|--|-------------------|
| Last dispensed | Medication | Medication Review |
| Last Month | Warfarin 2 or 3 mg OD (as instructed) | |
| Last Week | Salbutamol Inh. 2 puff prn | |
| Last Week | Seretide Inh. 2 puff BD | |
| Last Week | Tiotropium Inh. 1 puff OD | |
| Last Week | Paracetamol 1g QDS | |
| Last Week | Doxazocin 4mg OD | |
| Last Week | Atorvastatin 10mg nocte | |
| Last Week | Aspirin 75mg mane (with food) | |
| <i>END</i> | | |
| <i>Allow 24 hours for your repeat prescription</i> | | |
| Page 1/2 | | |

| Last dispensed | Medication | Medication Review |
|--|-------------------------------------|-------------------|
| Last Week | Amlodipine 5mg OD | |
| Last Week | Ramipril 5mg OD | |
| Last Week | Bendroflumethiazide 2.5mg OD | |
| Last Week | Betahistine 24mg OD | |
| Last Week | Imipramine Hydrochloride 10mg nocte | |
| Last Week | Digoxin 62.5mcg OD | |
| <i>END</i> | | |
| <i>Allow 24 hours for your repeat prescription</i> | | |
| Page 2/2 | | |

DRUGS TO STOP

DRUGS TO ALTER

DRUGS TO CONTINUE

DRUGS TO ADD

DISCUSS WITH ANAESTHETIST / SURGEON



DRUGS TO STOP

- Aspirin/Clopidogrel: 7 days before, unless high risk
- Metformin: 2 days either side of surgery
- Diuretics & ACE-inhibitors: On day of surgery
- Combined oral contraceptive pill / HRT: 4 weeks pre op if high VTE risk
- Psychiatric drugs – Monoamine Oxidase Inhibitors (MAOI) 2 weeks before



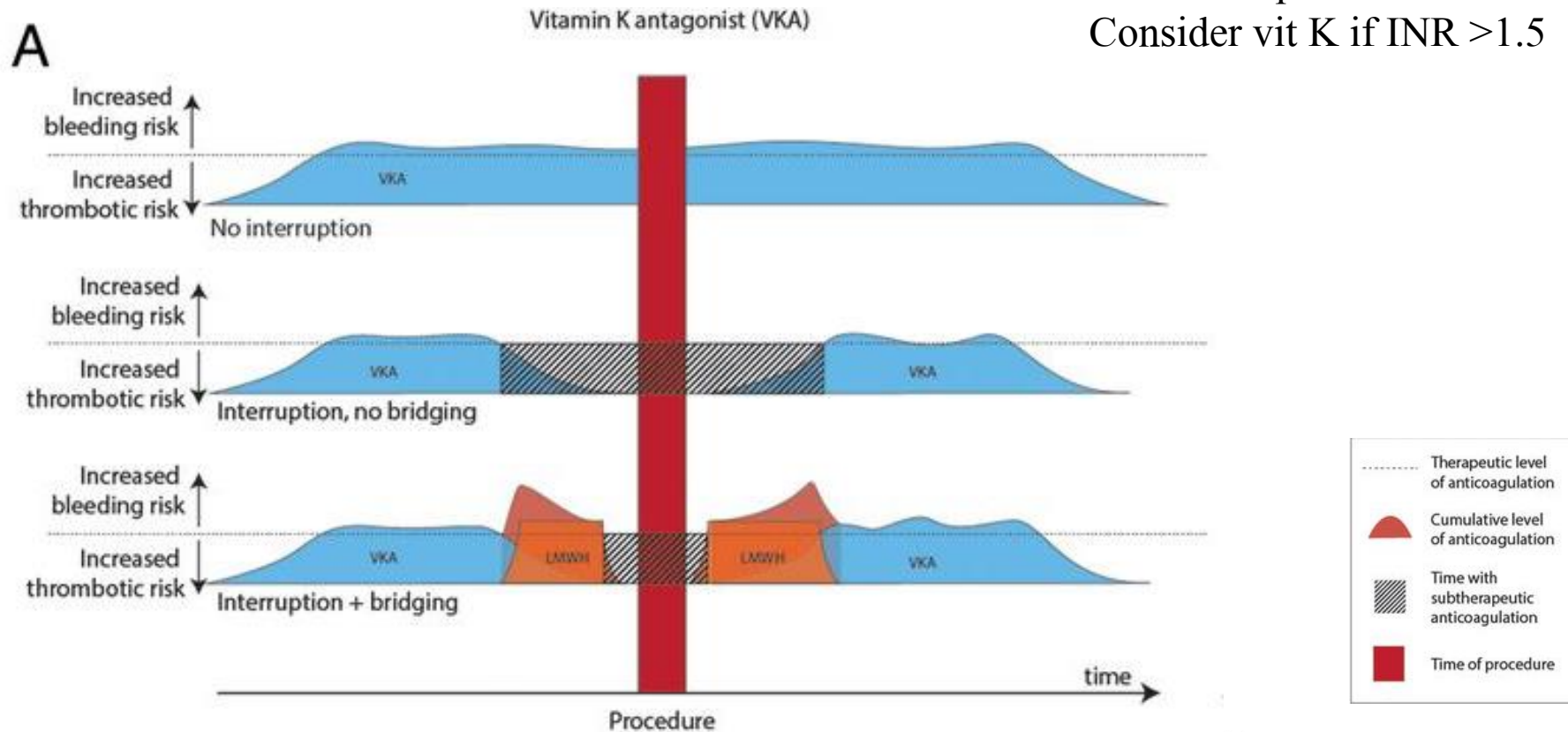
DRUGS TO ALTER

- Insulin: consider sliding scale
- Steroids: may need to change to IV steroids
- Anti-coagulation...



“Bridging” Warfarin

5 days before stop Warfarin
Start LMWH if high risk
Stop LMWH day before
1 day before check INR
Continue op if INR < 1.5
Consider vit K if INR > 1.5



DRUGS TO CONTINUE

- IF IN DOUBT, ASK THE ANAESTHETIST / SURGEON
- Anti-hypertensives
- Antacids / PPI
- Anti-arrythmics
- Anti-anginals
- Anti-depressants (other than MAOI)
- Benzodiazapines
- Bronchodilators
- Parkinson / Epilepsy medications
- Thyroid medications



DRUGS TO ADD

- Pre-operative - Bowel prep
- Intraoperative - TEDS stockings
- Post-operative - LMWH

Clinical Skills OSCE Station

Please EXAMINE from this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .



Examination

A

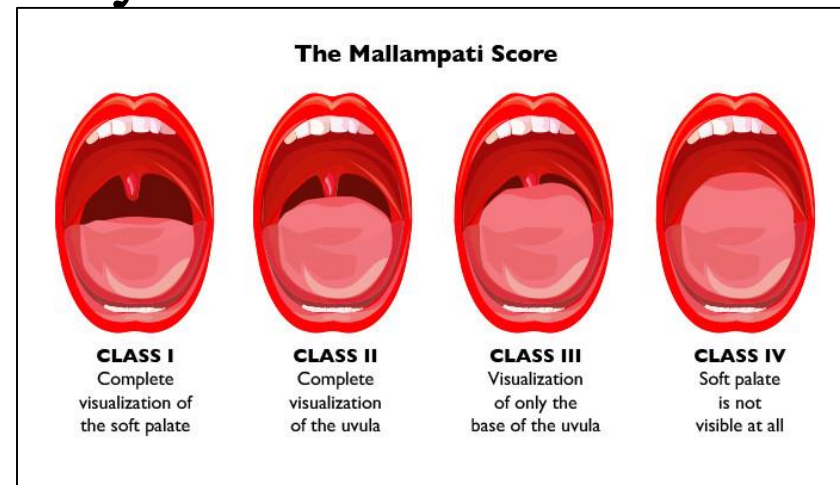
- Any intubation concerns (including dentures)
- Review mouth opening (Mallampati classification)

B

- Examine respiratory system

C

- Examine cardiovascular system
- Any signs of heart failure or respiratory distress



Practical Skills OSCE Station

What investigations would you order for this patient?

Anything else you may consider doing?

NICE Guideline

Age

85

ASA Grade

Grade 3

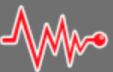
System of major comorbidity

- ☒ Cardiovascular
- ☒ Respiratory
- ☐ Renal

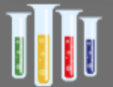
Calculate

Recommended Tests

ECG



Full Bloodcount



Renal Function

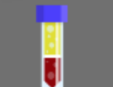


Tests to consider if clinically indicated

Chest X-Ray



Haemostasis

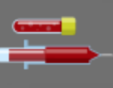


Urine Analysis

Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)



Blood Gases



Random Glucose



Lung Function



Investigations

Bedside

- ECG
- Random blood glucose
- Urine Analysis
- Peak Flow

Bloods

- FBC
- U+E
- Clotting— e.g. PT / APTT / INR

Imaging

- Chest X-ray

Special tests (for ASA 2/3 consider):

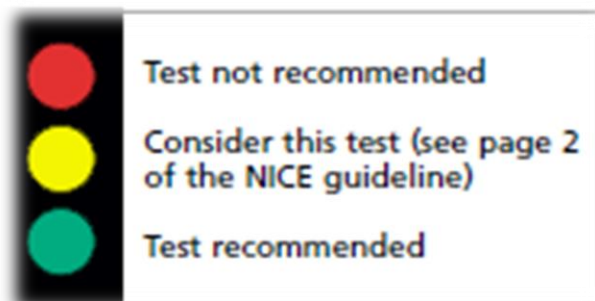
- Arterial Blood Gas
- Lung Function Tests
- Echocardiogram

MRSA Swabs



NICE Guideline

?Nice



ASA Grade 1: adults ≥ 16 years

| Test | Age (years) | | | |
|------------------|-------------|------------|------------|-----|
| | 16 to < 40 | 40 to < 60 | 60 to < 80 | 80 |
| | N | N | N | N |
| Chest X-ray | No | No | No | No |
| ECG | No | | | Yes |
| Full blood count | No | No | | |
| Haemostasis | No | No | No | No |
| Renal function | No | No | | |
| Random glucose | No | No | No | No |
| Urine analysis* | | | | |

Preoperative tests
The use of routine preoperative tests for elective surgery

ASA Grades

Grade 1 Normal healthy patient (i.e. without any clinically important comorbidity and without a clinically significant past/present medical history).

Grade 2 Patient with mild systemic disease.

Grade 3 A patient with severe systemic disease but the disease is not a constant threat to life.

Grade 1 surgery (minor)

Grade 2 surgery (intermediate)

Grade 3 surgery (major)

Grade 4 surgery (major+)

Neurosurgery

Cardiovascular surgery

Tests for the adult and young in adults and children

Pregnancy test

Patient consent

Clinical Guideline 3
Preoperative tests
April 2008

Which tests?

- Depends on ...

1. The Patient

- Age
- Co-morbidities and Risk grading

2. The Operation

- Severity / complexity



The patient...

American Society of Anesthesiologists

| | | Mortality (%) |
|-------------|--|---------------|
| ASA Grade 1 | Normal Healthy Patient | 0.1 |
| ASA Grade 2 | A patient with mild systemic disease | 0.2 |
| ASA Grade 3 | A patient with severe systemic disease | 1.8 |
| ASA Grade 4 | A patient with severe systemic disease that is a constant threat to life | 7.8 |
| ASA Grade 5 | A moribund patient unlikely to survive 24hrs with or without surgery | 9.4 |
| ASA Grade 6 | A brain dead patient who's organs are for donor purposes | |



The patient...

**** ASA BINGO ****



ASA 1

ASA 2

ASA 3

ASA 4

ASA 5

ASA 6
Patient with Asthma and well controlled DM
Patient with HTN
Current smoker (10/day)
Room smoke controlled with patient in FFN
BMI 29
BMI 29
MI 1 week ago
Minimal ETOH
PMH: HTN/IHD.
Ongoing valve dysfunction
Ruptured aneurysm
Bor organ donation with IHD

ASA Grade 2/3 – What is mild/severe?

Current angina

Occasional use of GTN spray (2–3 times per month). Does not include patients with unstable angina who would be ASA 3

Regular use of GTN spray (2–3 times per week) or unstable angina

Angina

Hypertension

Hypertension

Well controlled using a single anti-hypertensive medication

Not well controlled, requiring multiple anti-hypertensive medications

Diabetes

Well controlled, no obvious diabetic complications

Not well controlled, diabetic complications (e.g. claudication, impaired renal function)

DM

COPD

COAD/COPD

Productive cough; wheeze well controlled by inhalers; occasional episodes of acute chest infection

Breathlessness on minimal exertion (for example, stair climbing, carrying shopping); distressingly wheezy much of the time; several episodes per year of acute chest infection

Asthma

Well controlled by medications/inhalers; not limiting life-style

Poorly controlled; limiting life-style; on high dose of inhaler/oral steroids; frequent hospital admission on account of asthma exacerbation

Asthma

Renal disease

Renal disease

Elevated creatinine (creatinine > 100 µmol/litre and < 200 µmol/litre); some dietary restrictions

Documented poor renal function (creatinine > 200 µmol/litre); regular dialysis programme, (peritoneal or haemodialysis)



The operation...

Grading system of severity

Grade 1 Minor

Grade 2 Intermediate

Grade 3 Major

Grade 4 Major +

Neurosurgery

Cardiovascular surgery



The operation...

**** OPERATION BINGO ****



The operation...

Total joint replacement

Tonsillectomy

Grading system of severity

Total Abdominal Hysterectomy

Grade 1 Minor

Drainage of breast abscess

Grade 2 Intermediate

Excision of skin lesion

Grade 3 Major

Grade 4 Major +

Varicose veins excision

Neurosurgery

Cardiovascular surgery

Lung operation

Prostate resection

Thyroidectomy

Hernia repair



The operation...

Grading system of severity

| | | |
|---------|--------------|---|
| Grade 1 | Minor | Excision of skin lesion, drainage of breast abscess |
| Grade 2 | Intermediate | Hernia repair, varicose veins excision, tonsillectomy |
| Grade 3 | Major | Total Abdominal Hysterectomy, <u>prostate resection</u> , thyroidectomy |
| Grade 4 | Major + | Total joint replacement, lung operation |

Neurosurgery

Cardiovascular surgery



Management

C epod

P ost op care

O ptimise

D ay of surgery

BOOK

- **C**EPOD
 1. Immediate (Life / limb threatening)
 2. Urgent (Acute cases)
 3. Expedited (Subacute cases)
 4. Elective (Planned)
- **P**ost op care – involve the MDT
 - e.g. ITU/HDU – discuss with surgeon and anaesthetist
 - Social care - involve PT/OT etc.



OPTIMISE

- Act on pre-operative investigations
- DM control – first on theatre list
- VTE control – pre and post operative

DAY OF THE SURGERY

Fasting rules

- Last eat
- Last drink

Pregnancy test

Consent



How do you structure pre-op assessment?

- History
 - PC/PMH/PSH/DH/SH
- Examination
 - ABCDE
- Investigation
 - Bedside/bloods/imaging/special tests
- Management -
 - Optimisation
 - MDT involvement



Summary

- Pre-operative care aims to reduce complications
- Level of investigation depends on patient and operation
- Optimise the patient pre-op within the MDT



EXAMPLE CASE



85yo for TURP

Mr Griffin has suffered two "mini-strokes" in the past two years, since which he taken "blood thinning tablets". He has never had a heart attack and has had no previous operations. He has smoked twenty cigarettes a day since aged 15. He is a retired shopkeeper.

He lives in a warden controlled flat and has 'meals-on-wheels'. He can get around the home with a frame but is limited by his breathing. He states his breathing has been "bad for years" and he has a cough productive of clear sputum all year round. He states he gets a bad acidic taste when he ties his laces.



Examination

Tar staining

CV : Pulse irregularly irregular

HS- I+II+ ES murmur loudest aortic region no radiation to carotid

RS : Widespread wheeze

Observations

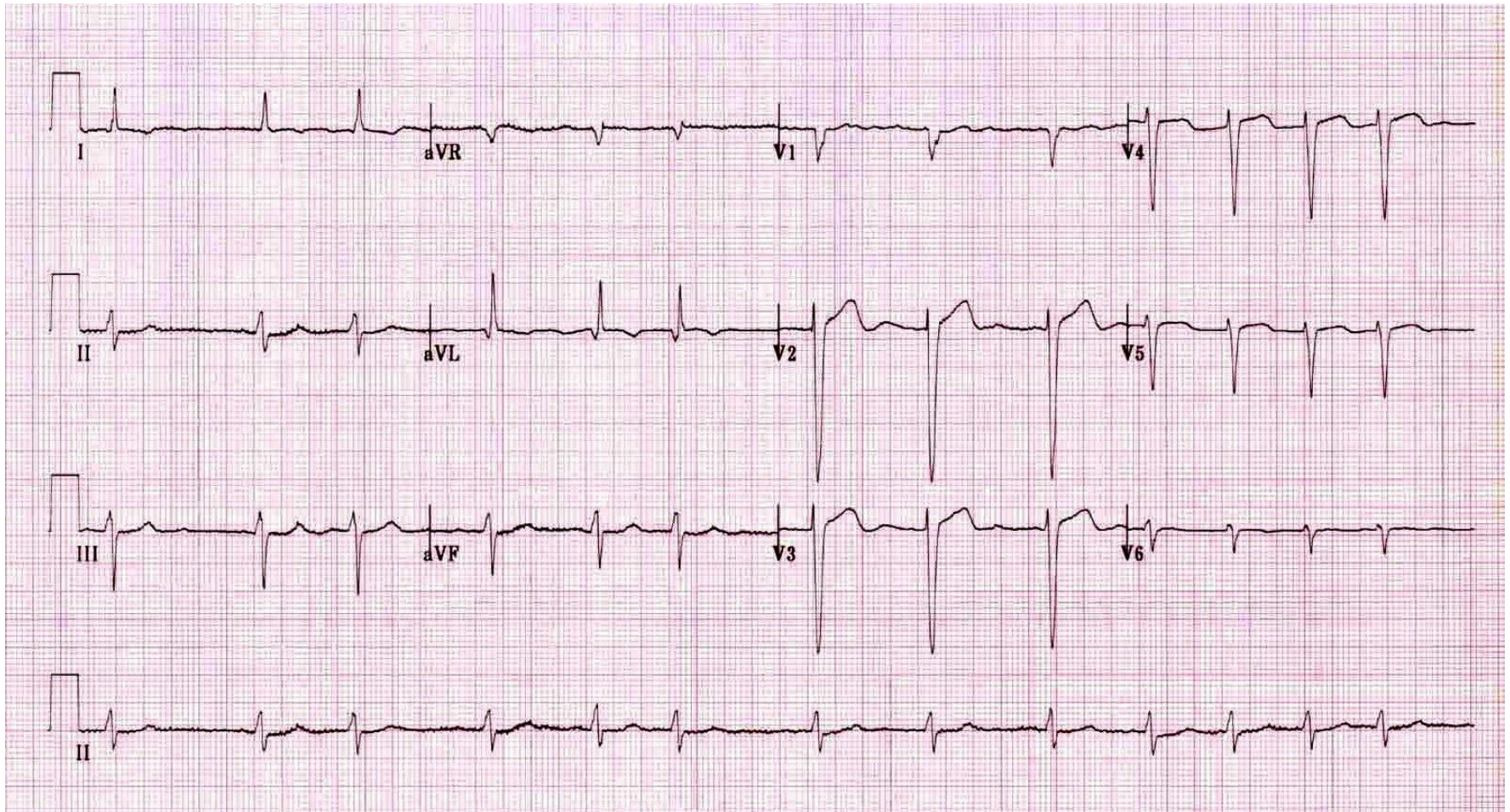
BP 125/80

HR 78

RR 14

Sats 91%





Rate: 78bpm (60-100bpm)

Rhythm: Irregularly irregular

Axis: LAD

Atrial fibrillation



Investigations

| | | |
|-------------------------------|------|-----------|
| PH | 7.37 | 7.35-7.45 |
| PO ₂ | 7.8 | >10.6 kPa |
| PCO ₂ | 4.5 | 4.7-6 kPa |
| HCO ₃ ⁻ | 24.6 | |
| BE | 0.6 | |
| S _p O ₂ | 91% | |
| HB | 16.7 | |
| GLUC | 5.6 | |

| | | |
|------|-----|-----------|
| APTT | 32 | 30-45 sec |
| PT | 31 | 10-12 sec |
| TT | 6.9 | 10-15 sec |
| INR | 2.6 | |

INR in therapeutic range

Type 1 respiratory failure



Hyperexpansion
Flat diaphragms
Bullae

Height: 1.72m Weight: 58 Age: 86
 Date: One year ago Race: Cauc Doctor: Dr Wilson

SPIROMETRY

| | | Ref | Pre Meas | % Pred | Post Meas |
|-----------|--------|------|-------------|--------|-----------|
| FVC | Litres | 3.61 | 1.23 | 34 | |
| FEV1 | Litres | 2.73 | 1.98 | 72 | |
| FEV1/FVC | % | 80 | 38 | | |
| FEF25-75% | L/sec | 2.8 | 0.8 | 28 | |
| FEF50% | L/sec | 3.84 | 2.8 | 73 | |
| FEF75% | L/sec | 6.75 | 5.5 | 85 | |
| PEF | L/sec | 439 | 210 | 48 | |

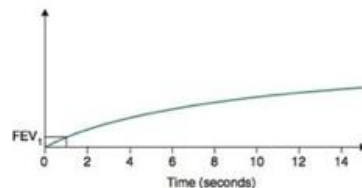
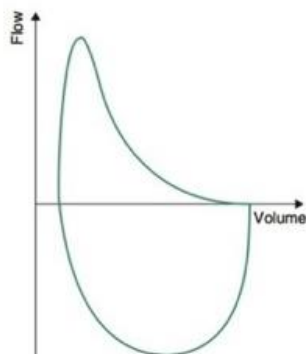
MVV L/min
 MVV Length

PLETHYSMOGRAPH LUNG VOLUMES

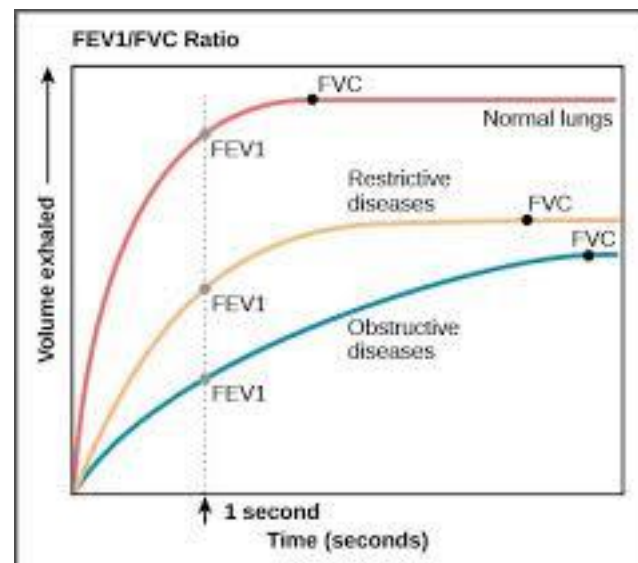
| | | Ref | Pre Meas | % Pre Ref |
|---------|--------------------------|------|----------|-----------|
| TLC | Litres | 6.63 | 6.9 | 104 |
| Vt | Litres | 416 | 370 | 89 |
| RV | Litres | 2.67 | | |
| FRC | Litres | 3.61 | | |
| VC | Litres | | | |
| IC | Litres | 3.7 | | |
| ERV | Litres | | | |
| Raw | cmH ₂ O/L/sec | | | |
| RV/TLC% | % | 55.9 | - | 73 |

DIFFUSING CAPACITY

| | | Pre Meas | Ref | % Pre Ref |
|---------|-------------|----------|-----|-----------|
| DLCO | mL/min/mmHg | | | |
| VA | Litres | | | |
| DLCO/VA | l/min/mmHg | | | |



| | | Ref | Pre Meas | % Pred |
|----------|--------|------|-------------|--------|
| FVC | Litres | 3.61 | 1.23 | 34 |
| FEV1 | Litres | 2.73 | 1.98 | 72 |
| FEV1/FVC | % | 80 | 38 | |



Obstructive disease