

• ABGs

بالامكان بيجيننا ارقام ويبطلب تشخيص.

- لازم نسبنا للقسم ↓
- pH = 7.35 - 7.45
 - P_{CO_2} = 35 - 45
 - P_{O_2} = 80 - 100
 - Bicarbonate = 22 - 26
 - $\Sigma_a O_2$ = >95%

- Radial من وين؟
- Brachial
- Femoral

وقت لازم نطلب ABGs؟

- Respiratory problems → asthma
COPD
- Renal diseases
- O₂ therapy
- Drug poisoning

? Patient, ↑CO₂, O₂ ⇒ 50%

• What to do?

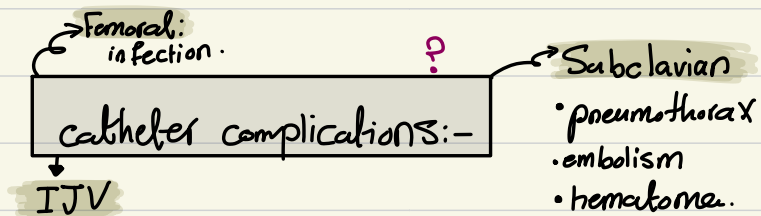
↑O₂, washing of CO₂

• CVC central venous catheter

Indications:-

- administration of irritant medications → Vasopressor
→ chemotherapy.
- TPN
- Dialysis.
- difficult IV access
- Hemodynamic monitoring.
- Fluid management.
- Blood transfusion

- IJV → right better
 - straight path to SVC → rt atrium.
 - more superficial
 - wider
 - less lymph duct injury.
- where
 - Subclavian
 - Femoral.



Contraindications:-

- Site infection
 - Coagulopathy
 - Morbid obesity
 - if the patient refuse.
 - arrhythmia.
 - anatomic distortion
 - other indwelling intravascular hardware.
 - Injury proximal to the insertion site.
- Bleeding.
 - Puncture/injury to adjacent structures.

Trauma

patient, RTA, multi trauma ...
1st to do to evaluate the case?

GCS → 12/15 → ICU
→ 8/15 → intubation

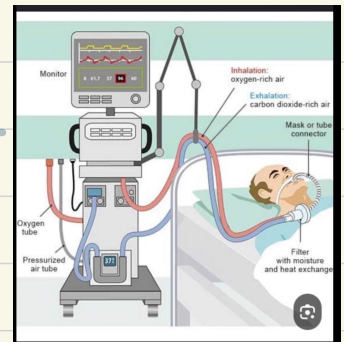
- level of consciousness = GCS

Type	Stimulus	Type of Response	Points
Eyes	Open	Spontaneously	4
		To verbal command	3
		To pain	2
		No response	1
Best Motor Response	To verbal command	Obeys	6
	To painful stimulus	Localized pain	5
		Flexion-withdrawal	4
		Flexion-abnormal	3
		Extension	2
		No response	1
Best Verbal Response		Oriented and converses	5
		Disoriented and converses	4
		Inappropriate words	3
		Incomprehensible sounds	2
		No response	1

Priority ⇒ Chest → abdomen → Head -----

? Part of ventilator or Anaesthetic machine

بالعادة بنغطي المريض [100% O₂] لمدة 4-5 ساعات
بعدين بنفصل



FIO₂

= 3-5

PEEP → positive end exp. pressure ↓

vt ⇒ 6-8 ml/kg

RR

P_{in alveoli} > P_{atmospheric}
إذا كانت مستمرة ينفتح
↳ COVID
↳ COPD
↳ Asthma



• pulmonary reserve

الاحتياط الرئوي

pre-oxygenation

↓ possibility of apnea

↑ time → [desat.]

de-nitrogenation

O₂ 21%

N₂ 78%

• pulmonary ventilation

تجوية الهواء التي تدخل الرئة وتنتقل منها

• Alveolar ventilation

الهوا الموجود بالرئة بصيراله gas exchange

? level of larynx in children? in adult?

C₃-C₄

C₅-C₆

∴ intubation is more difficult in children.

upper airway

منطقة
تتم
بتوسع

? Narrowest part of upper airway in children?

Cricoid cartilage.

1 mL injury ⇒ 60% obstruction

⇒ spasm ...

So, in children < 10 years we use

uncuffed tubes

• Tubes

Size of tube

• uncuffed $\frac{\text{age}}{4} + 4$

• Cuffed $\frac{\text{age}}{4} + 3.5$

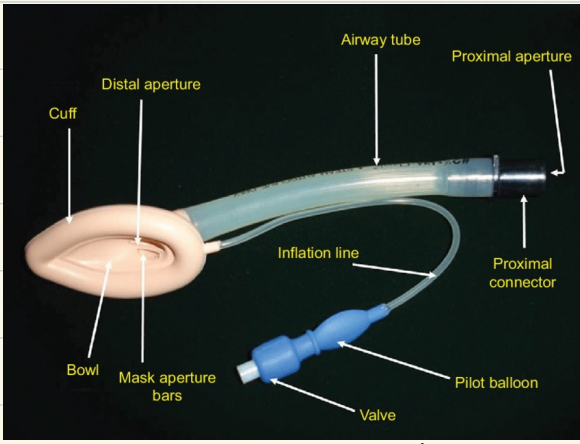
Length

• Orally $\frac{\text{age}}{2} + 12$

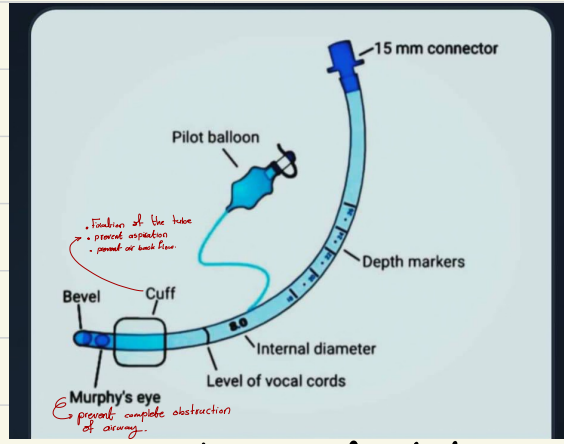
• Nasally $\frac{\text{age}}{2} + 15$

كيف نتأكد انه في tube → in Auscultation → 1. Stomach
2. lt lung.

?



laryngeal mask



Endotracheal tube

more safe

if the cuff pressure is $< 25 \text{ cm H}_2\text{O}$ we don't prevent aspiration.

So it should be 25-35

- 1 cc syringe = 7 cm H₂O

2 ECG = 200% زيادة؟

- inhalational agents → Halogenated
- Non-halogenated

MAC ⇒

Halothane	0.75
isoflurane	1.2
sevoflurane	1.8
N ₂ O	104
Desflurane	6.6

؟

When to avoid N₂O? → good analgesic, bad anesthetic

- Intestinal obstruction
- Pneumothorax
- air embolism
- middle ear surgery
- immunosuppressed diseases. ⇒ affect the function & production of WBC.
- Pregnancy. 1st trimester ⇒ affect DNA

Diffusion Hypoxia

2nd gas effect

= synergistic effect. 1+1=3

N₂O مع sevoflurane أقل uptake مع N₂O
زيادة uptake قبل الـ 1st

The second gas effect occurs when a soluble first gas such as nitrous oxide is delivered in high inspired concentrations and the alveolar-capillary uptake of the first gas increases the alveolar concentrations of other gases present, accelerating their uptake.

- Muscle relaxants → Depolarizing
- Non-depolarizing

Succinylcholine ⇒ ? Side effects :-

rapid onset
short duration

- Scoline apnea
- Malignant hyperthermia
- Hyperkalemia

? patient, Burn from 24hrs, when can we use scoline?

- 1st 24hrs then → • absolute contraindication.

Atracurium ⇒ 0.5 mg/kg.

- Contraindicated in Asthma (his release)
- Hofman elimination.

Treatment of Malignant hyperthermia:-

- Stop scoline
- Treat → hyperkalemia → dextrose + insulin
- acidosis → Na bicarbonate
- **Dantrolene** 25 mg/kg IV rapidly → ^{دواء الأنتولين} ⇒ subsequent dose
- Change the soda lime & tubes. 25 mg/kg I.V every 5 mins.
up to 10 mg

• Canula

Gauge

Flow

Colors ⇒ O₂ → white

Blue 22

30

N₂O → blue

Pink 20

60

air → black & white

Green 18

180

Elective CS $\begin{cases} \nearrow \text{GA} \\ \searrow \text{Spinal} \end{cases}$

things we should take care of :-

- Small size of tube (the woman is already edematous)
- Rapid sequence induction / considered full stomach.
- must be avoid hyperventillation \rightarrow hypocapnia \rightarrow VC \rightarrow baby \rightarrow acidosis
على انفسه ال placenta
 mother \rightarrow alkalosis
- Position \rightarrow lithotomy \checkmark
 supine X pressure of uterus on IVC \rightarrow supine hypotensive syndrome
 = IVC compression syndrome.
- Delayed recovery!

Differences between Spinal and Epidural Anaesthesia

Spinal anaesthesia	Extradural Anaesthesia
Level: below L1/L2, where the spinal cord ends	Level: at any level of the vertebral column.
Injection: subarachnoid space i.e puncture of the dura mater	Injection: epidural space (between Ligamentum flavum and dura mater) i.e without puncture of the dura mater
Identification of the subarachnoid space: When CSF appears	Identification of the Peridural space: Using the Loss of Resistance technique.
Dosis: 2.5- 3.5 ml bupivacaine 0.5% heavy	Dosis: 15- 20 ml bupivacaine 0.5%
Onset of action: rapid (2-5 min)	Onset of action: slow (15-20 min)
Density of block: more dense	Density of block: less dense
Hypotension: rapid	Hypotension: slow
Headache: is a probably complication	Headache: is not a probable.

multi-size needle \leftarrow

\rightarrow 1 size tuohy needle.

Motor & sensor

Sensor > motor.