



Pharmaceuticals

Answers

1) D

2) D

Methemoglobinemia is a rare but serious side effect of INO and other medications (topical Anesthetics, antimalarials, nitrates) or hereditary. Can cause wide range of clinical manifestations from mild to severe and death. Clinicians should be aware of it especially if using any of the common medications. Discrepancies between low SpO₂ but high PaO₂ should raise a flag, Methemoglobin levels can be measured if needed. Mild cases can be managed by discontinuing the offending drug and 100% FiO₂, however severe cases need to be treated with vitamin C and methylene blue.

3) C

Anticholinergic medications like Ipratropium can be absorbed topically in the eye when using nebulized treatment. Side effects can cause conjunctival irritation, anisocoria (unequal pupils) and angle closure glaucoma.

4) C

Systemic steroids can be used in severe cases of ARDS. Multiple studies and meta-analysis confirmed the improved oxygenation, however no benefit on mortality or shortening ventilator days.

5) B

Of the medications listed, inhaled TXA have shown benefits in improving hemoptysis in both children and adults from various etiologies with minimal side effects.

6) C

Bronchodilators are given frequently during mechanical ventilation empirically. No benefits of beta-adrenergic bronchodilators could be demonstrated in ARDS. Hence the use of those medications should be used if there is evidence of elevated measured airway resistance during mechanical ventilation.

7) C

Talc slurry is widely used for pleurodesis in pneumothorax or recurrent effusions installed during thoracoscopic surgery or chest tube. Side effects are usually mild (pain, fevers) but serious side effects

of severe lung injury/respiratory failure and systemic inflammatory syndrome can rarely happen. Treatment is supportive.

8) C

The topic of neuromuscular blockers during mechanical ventilation for ARDS remains controversial with mixed results from improved mortality to no change.

The benefits appear to be the improved dyssynchronies that might cause ventilator induced lung injury (VILI). Efforts to improve such dyssynchronies should be taken and neuromuscular blockers should be used as last resort.

9) D

Inhaled prostacycline has shown equal efficacy to INO in ARDS and pulmonary hypertension with less side effects specifically (renal failure and methemoglobinemia). It also does not require specific delivery devices and is cheaper.

10) C

Ketamine and other inhaled anesthetics have shown benefits in refractory status asthmaticus secondary to direct bronchodilator effects and anti-inflammatory effects. Other listed medications do not have such benefit.