PEEP

indications for intubation & mechanical ventilation

complications of intubation and ventilation

PEEP

Endotracheal intubation or tracheostomy
For airway protection (e.g. coma)
For suction of secretions
To assist sedation and neuromuscular paralysis (e.g. to ↓ VO₂, ↓ respiratory distress)
To overcome upper airway obstruction

Mechanical ventilation
To manipulate alveolar ventilation (Vₐ) and PaCO₂ (e.g. reverse respiratory acidosis, ↓ cerebral blood flow and ICP)
To ↑ SaO₂ and PaO₂ (by ↑ FRC, ↑ end-inspiratory lung volume, ↑ Vₐ, ↑ FiO₂)
To ↓ work of breathing (e.g. to overcome respiratory muscle fatigue)
To ↑ FRC (e.g. ↑ PaO₂, ↓ VILI)
To stabilize the chest wall in severe chest injury

PEEP definition: - PEEP is the maintenance of positive pressure within the lungs throughout expiration which may be applied during mandatory ventilation or during spontaneous breathing when it is called 'continuous positive airway pressure' or CPAP

advantages:
(i) increased airway pressure
(ii) increased functional residual capacity (FRC) by preventing airway collapse
(iii) recruitment of collapsed alveoli
(iv) decreased airway resistance
(v) reduced V-Q mismatch
(vi) improved distribution of inspired gas
(vii) reduced work of breathing
(viii) increased PO₂ due to increase in FRC
(ix) prevention of surfactant aggregation reducing alveolar collapse

disadvantages:
(i) impaired CO₂ elimination
(ii) reduced cardiac output
(iii) reduced urine output through decreased GFR and increased ADH
(iv) increased pulmonary vascular resistance (in West's zones 1 & 2 where alveolar pressure exceeds venous pressure)
(v) decreased flow in West's zone 1 causing increased dead space
(vi) may worsen right to left intracardiac shunt by increased PVR