techniques include manual percussion, vibration, and squeezing of the chest; cough; forceful expiration; and breathing exercises. Special mechanical devices are also currently used to perform CPT (e.g., vest-type percussors). Postural drainage in combination with forced expiration has been shown to be beneficial.

Common techniques used in association with postural drainage include manual percussion of the chest wall and percussion with mechanical devices, such as a high-frequency handheld chest compression device. A "popping," hollow sound, not a slapping sound, should be the result. The procedure should be done over the rib cage only and should be painless. Percussion can be performed with a soft circular mask (adapted to maintain air trapping) or a percussion cup marketed especially for the purpose of aiding in loosening secretions. CPT is contraindicated when patients have pulmonary hemorrhage, pulmonary embolism, end-stage renal disease, increased intracranial pressure, osteogenesis imperfecta, or minimal cardiac reserves.

Intubation

Rapid-sequence intubation (RSI) is commonly performed in pediatric (and some neonatal) patients to induce an unconscious, neuromuscular blocked condition to avoid the use of positive-pressure ventilation and the risk of possible aspiration (Bottor, 2009). Atropine, fentanyl, and vecuronium or rocuronium are drugs commonly used during RSI. In neonates, ET tube intubation is often a stressful event, and hypoxia and pain are commonly associated with routine intubation; RSI in neonates may serve to prevent such adverse events (Bottor, 2009).

Indications for intubation include:

- Respiratory failure or arrest, agonal or gasping respirations, apnea
- Upper airway obstruction
- Significant increase in work of breathing, use of accessory muscles
- Potential for developing partial or complete airway obstruction—respiratory effort with no breath sounds, facial trauma, and inhalation injuries
- Potential for or actual loss of airway protection, increased risk for