PERCUTANEOUS TRANSTRACHEAL CATHETER VENTILATION (ALS)

I. Indications:
   A. A fully obstructed airway that cannot be cleared by mechanical measures.
   B. Extensive maxillofacial or upper airway injury that makes ventilation with a bag valve mask or endotracheal intubation unfeasible.

II. Contraindications:
   A. Possibility of establishing a less invasive airway.

III. Precautions:
   A. Allow time for exhalation through the small lumen catheter.

IV. Complications
   A. Inadequate ventilation
   B. Inadequate exhalation could result in hypercarbia and increased pressure in the lungs causing rupture of alveoli.
   C. False passage
   D. Bleeding
   E. Laryngeal/vocal cord damage
   F. Subcutaneous emphysema

V. Equipment
   A. 14 gauge 2-inch angiocath or larger
   B. 10cc syringe
   C. Alcohol or povidone-iodine pads
   D. Dressing supplies
   E. Device to deliver ventilations via the angiocath

VI. Procedure Sequence:
   A. Takes universal precautions.
   B. Places the victim supine and hyperextends the head and neck; if spinal injuries are suspected, maintains the neck in a neutral position.
   C. Locates the cricothyroid membrane and cleanses the site.
D. Attaches a 14 gauge or larger with the needle catheter to the 10 cc syringe.

E. Carefully inserts the needle and catheter in the midline through the skin and membrane and directs it downward and caudally at a 45° angle to the trachea.

F. Maintains a negative pressure on the syringe as the needle and catheter are advanced.

G. Once in the trachea, advances the catheter over the needle until the catheter hub rests on the skin.

H. Holds the hub in place to prevent accidental displacement and removes the syringe and needle.

I. Reconfirms the position of the catheter by aspirating freely with the syringe.

J. Connects ventilatory equipment to the catheter hub and to the oxygen source.

K. Ventilate.

L. Watches the chest rise carefully.

M. Allows exhalation to happen passively and as fully as possible.

N. Ventilates the patient at a rate of 20 breaths per minute with an inflation time ratio of 1:2.

O. Checks for adequacy of ventilation and fastens the hub securely to the skin.

P. Continues ventilatory support.

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