Respiratory Secretions at the End of Life

KEY POINTS

- During the last few hours and days of life, many individuals will not be able to swallow or clear upper airway secretions, these secretions often accumulate and lead to gurgling or rattling sounds. This is often referred to as "congestion"
- Generally, this occurs when the individual is only minimally conscious or unconscious and does not cause them any distress
- The presence of respiratory secretions is a strong predictor of death (75% of individuals die within 48 hours from the onset of this symptom)
- Repositioning the patient (into side-lying) is often helpful and all that is necessary
- Anticholinergic medications (e.g. given buccally or sublingually in the mouth) can be helpful in many cases to reduce the secretions and noise

- Children (and adults) are generally unaware of this symptom, but it can be very distressing for family members
- Ongoing support and education of the family around this symptom is very important to minimize the distress of the family witnessing this in their dying child

ASSESSMENT

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- A clinical assessment is generally all that is required
- Other investigations would not be appropriate at this stage as the patient's condition is very poor and death can be expected soon (meaning hours to several days)

MANAGEMENT

- Positioning the patient on their side with their upper body elevated will allow secretions to passively drain out of the mouth
- Avoid mechanical suctioning of secretions since this is not generally helpful and may be distressing to the patient
  - Consider suctioning only if thick mucus or blood is present in the mouth and can easily be removed with a soft catheter
- Much of the management focuses on teaching and supporting the family who may find this symptom difficult to observe
- Ensure good mouth care
- Reduce or stop IV fluids, which generally worsen secretions
- Administering anticholinergic medications can sometimes be helpful for upper airway secretions (if available):
  - **Glycopyrronium – 0.2-0.4 mg Subcutaneous q4-6h PRN**
  - **Hyoscine BUTYLbromide – 20 mg Subcutaneous, then 20 mg q4-6h PRN**
  - **Hyoscine HYDRObromide/Scopolamine – 0.4-0.6 mg Subcutaneous q4-6h PRN; or transdermal patch, replace patch every 72 hours**
    - Note: Hyoscine HYDRObromide is quite sedating; may increase risk of delirium in end-stage renal failure patients
  - **Atropine 1% eye drops – 1-4 drops (each drop contains approximately 0.5 mg atropine) under the tongue q2-4h PRN**

- **Glycopyrronium 40-100 mcg/kg/dose PO q6-8h (Maximum: 3000 mcg/dose)**
  - **IV/Subcutaneous: 4-10 mcg/kg/dose q 3-4h (Maximum: 200 mcg/dose)**

- **Hyoscine BUTYLbromide**
  - **<5 yrs: 0.3 mg/kg/dose IV q6-8h**
  - **5-<12 yrs: 5-10 mg IV q6-8h**

- 12 years and above: 10-20 mg IV q6-8h

- **Hyoscine HYDRObromide (Scopolamine)**
- **IV/IM/Subcutaneous/PO: 5-6 mcg/kg/dose q6-8h (Maximum: 300 mcg/dose). Parenteral formulation of hyoscine HYDRObromide can be given orally**
- **Transdermal patch (1.5 mg/patch): 12-17 kg: ½ patch q72h; >17 kg: 1 patch q72h. Ref: care beyond cure**
  - Note: do not cut the patch, but instead only remove only the portion of the backing required for the dose OR apply occlusive dressing (i.e. Tegaderm) to a portion of the patch
- **Atropine 1% eye drops – dosed in the same way as for adults**

PITFALLS/CONCERNS

- Anticholinergic medications should be used cautiously in patients who are still responsive as they can cause agitation. They are generally used in patients close to death
- Glycopyrronium and hyoscine BUTYLbromide do not cross the blood-brain barrier and may therefore cause less sedation than hyoscine HYDRObromide and atropine
- Treatment with these agents is not always successful in reducing the secretions so it is important to counsel the family about what to expect

- Parenteral glycopyrrolate can be given PO (at same dose) and is usually well tolerated by children

PALLIATIVE TIPS

- Explaining to the family that the noisy respiratory secretions are unlikely to be distressing for the patient who is unconscious is an important part of helping to support the family

- Medications may be effective in upper airway secretions, but the same medications generally do not have any effect on secretions deeper in the lungs, such as when a patient has pulmonary oedema or pneumonia
- Hydration with IV fluids or artificial feeding (e.g. NG or gastrostomy tube) will increase the severity of this symptom
- It is recommended to reduce or stop artificial hydration in the last few days of life or when the patient develops respiratory secretions, since this improves comfort and reduces symptoms

REFERENCES

- Bennett M, Lucas V, Brennan M, Hughes A, O'Donnell V, Wee B; Association for Palliative Medicine's Science Committee. Using anti-muscarinic drugs in the management of death rattle: evidence-based guidelines for palliative care. *J Palliative Med.* 2002 Sep;16(5):369-74.
- De Simone GG, Eisenchlas JH, Junin M, Pereyra F, Brizuela R. Atropine drops for drooling: a randomized controlled trial. *J Palliative Med.* 2006;20(7):665-71.
- Downing M. Medical care of the dying, 4th edition. Victoria Hospice Society. 2006. pp. 363-393.
- Kintzel PE, Chase SL, Thomas W, Vancamp DM, Clements EA. Anticholinergic medications for managing noisy respirations in adult hospice patients. *American Journal of Health-System Pharmacy.* 2009;66(5):458-64.
- Lacey J. Management of the actively dying patient. In: Cherny N, et al., editors. *Oxford textbook of palliative medicine.* 5th ed. Oxford University Press; 2015.
- National Institute for Health and Care Excellence. Care of dying adults in the last days of life 2015 [1-26]. Available from: https://www.nice.org.uk/guidance/ng31/resources/care-of-dying-adults-in-the-last-days-of-life-1837387324357.
- Wildiers H, Dhaenekint C, Demeulenaere P, Clement PM, Desmet M, Van Nuffelen R, et al. Atropine, hyoscine butylbromide, or scopolamine are equally effective for the treatment of death rattle in terminal care. *Journal of Pain & Symptom Management.* 2009;38(1):124-33.