

Reducing death rattle at the end of life

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Clinical question

Can medications reduce the incidence of terminal respiratory secretions (death rattle) at the end of life?

Bottom line

Best evidence supports prophylactic administration of scopolamine butylbromide (Buscopan, hyoscine butylbromide) in patients close to death but without death rattle, which reduces the number who develop death rattle (13% vs 27% with placebo). Evidence supporting treatment of death rattle once it has begun is less clear, with no evidence that one anti-muscarinic is clearly superior to another. There is no evidence that treatment of death rattle improves patient comfort. It may, however, reduce the distress of people at bedside. Treatment decisions should be guided by conversations with family or caregivers.

Evidence

Prophylaxis

- In 1 double-blind RCT,¹ 162 hospice patients in the dying phase (according to a multidisciplinary team) without death rattle were given scopolamine butylbromide, 20 mg subcutaneously 4 times daily, or placebo.
 - Development of death rattle (score of 2 or 3 on a 3-point scale, higher scores indicating worse condition) at any point prior to death: 13% versus 27% (placebo); number needed to treat of 8.
 - Adverse events (including restlessness, dry mouth, or urinary retention): no difference.
- One non-blinded RCT² with 132 adults close to death but without death rattle examined prophylaxis versus treatment at onset of death rattle with scopolamine butylbromide, 20 mg subcutaneously then 60 mg every 24 hours:
 - 48% of patients suffered death rattle if treatment was initiated after symptoms were present, versus 6% of patients for whom treatment was initiated prior to symptom onset.

Treatment once death rattle presents

- Four systematic reviews³⁻⁶ of 5 RCTs (10 to 333 participants) found the following.
 - Three RCTs found no difference between scopolamine hydrobromide and either atropine (1 RCT, 333 patients) or octreotide (1 RCT, 10 patients). Whether outcomes differed between scopolamine hydrobromide and glycopyrronium (1 RCT, 13 patients) was unclear.
 - Two RCTs found no difference between placebo and either atropine (1 RCT, 160 patients) or scopolamine hydrobromide (1 RCT, 31 patients).

Context

- Death rattle* is defined as noisy breathing caused by mucus in the upper respiratory tract.
 - It occurs in 12% to 80% of patients in the final 3 days of life.⁷
 - It may not distress patients; however, it may be distressing to family and caregivers.¹
- Nonpharmacologic measures include physical repositioning, although evidence to support this is lacking.⁵
- Scopolamine butylbromide (Buscopan) is available subcutaneously or orally in Canada.
 - Scopolamine hydrobromide is different and can cause central nervous system effects.⁸

Implementation

While glycopyrronium is commonly used for death rattle, there is little evidence of efficacy or tolerability. Prophylaxis with scopolamine butylbromide appears more effective than treatment once death rattle is established, so it is reasonable to consider in a patient's dying phase. It is important to examine the reasons treatment is being explored, including patient and caregiver distress. Consideration of alternative supportive measures including reassurance and management of other symptoms (eg, pain or dyspnea) may provide greater comfort. 🌿

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Competing interests

None declared

References

- Van Esch HJ, van Zuylan L, Geijteman ECT, Oomen-de Hoop E, Huisman BAA, Noordzij-Nooteboom HS, et al. Effect of prophylactic subcutaneous scopolamine butylbromide on death rattle in patients at the end of life: the SILENCE randomized clinical trial. *JAMA* 2021;326(13):1268-76.
- Mercadante S, Marinangeli F, Masedu F, Valenti M, Russo D, Ursini L, et al. Hyoscine butylbromide for the management of death rattle: sooner rather than later. *J Pain Symptom Manage* 2018;56(6):902-7. Epub 2018 Aug 31.
- Jansen K, Haugen DF, Pont L, Ruths S. Safety and effectiveness of palliative drug treatment in the last days of life—a systematic literature review. *J Pain Symptom Manage* 2018;55(2):508-21.e3. Epub 2017 Aug 10.
- Kolb H, Snowden A, Stevens E. Systematic review and narrative summary: treatments for and risk factors associated with respiratory tract secretions (death rattle) in the dying adult. *J Adv Nurs* 2018;74(7):1446-62. Epub 2018 Apr 6.
- Lokker ME, van Zuylen L, van der Rijt CCD, van der Heide A. Prevalence, impact, and treatment of death rattle: a systematic review. *J Pain Symptom Manage* 2014;47(1):105-22. Epub 2013 Jun 18.
- Wee B, Hillier R. Interventions for noisy breathing in patients near to death. *Cochrane Database Sys Rev* 2017;(1):CD005177.
- Crawford GB, Dzierzanowski T, Hauser K, Larkin P, Luque-Blanco AI, Murphy I, et al. Care of the adult cancer patient at the end of life: ESMO clinical practice guidelines. *ESMO Open* 2021;6(4):100225. Epub 2021 Aug 17.
- Bennett M, Lucas V, Brennan M, Hughes A, O'Donnell V, Wee B. Using anti-muscarinic drugs in the management of death rattle: evidence-based guidelines for palliative care. *Palliat Med* 2002;16(5):369-74.

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