Unsafe Use of Intravenous Haloperidol Pervasive in Hospitalized Elderly

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Background

- Delirium is present in 11-24% of elderly patients on hospital admission while another 6-56% will develop it during their hospital stay.1-3
- Off-label intravenous (IV) administration of haloperidol is often used due to its rapid onset and ease of administration.4
- Numerous case reports of QT prolongation, Torsades de Pointes (TdP), and sudden death is associated with IV haloperidol.5
- In 2007, FDA issued a black box warning for IV haloperidol due to the risk of adverse outcomes from QT prolongation.6

Purpose

To determine whether hospitalized elderly patients who are prescribed IV haloperidol receive expert recommendation-concordant care to minimize adverse events related to QT prolongation.

Methods

- Retrospective study of patients ≥ 65 years who received ≥ 1 dose of IV haloperidol at the University of Colorado Hospital (UCH) between Jan. 1, 2008 and Jan. 1, 2011.
- Patient demographics, co-morbidities, and QTc from electrocardiogram (ECG) were collected from electronic medical record.
- Date of first dose of haloperidol administered, amount given, and concomitant QT prolonging drugs were obtained from electronic medication administration record.
- Adherence to expert recommendations defined as meeting the following 3 measures 5-7:
  1. ECG performed within 7 days before administration of first dose of IV haloperidol
  2. IV haloperidol administration avoided if QTc ≥ 500 ms
  3. ECG reevaluated QTc within 24 hours after first dose of haloperidol if prior QTc ≥ 450 ms

Results

- 556 patients received IV haloperidol during the study period.
- Median size of the first dose of haloperidol given is 2 mg (range 0.2-10 mg).
- 20% received ≥ 5 mg of haloperidol for their first dose.
- 80% had an ECG within 7 days of their first dose. (Measure 1)
- 16% received IV haloperidol despite having a baseline QTc ≥ 500 ms (96% CI: 12.2-19.6). (Measure 2)
- Only 21% of patients with a baseline QTc ≥ 450 ms had a repeat ECG measured within 24 hrs after the first dose. (Measure 3)

Limitations

- Retrospective, observational design
- Only the first haloperidol doses were recorded so events associated with prolonged or cumulative doses of haloperidol may be missed which may underestimate unsafe use.
- We did not account for transient factors (i.e. electrolyte disturbances) that may have affected QTc.

Conclusion

- Off-label IV haloperidol use is common among hospitalized elderly.
- 58% of patients in this analysis did not receive care concordant with expert recommendations.
- More than 1 in 10 elderly patients received IV haloperidol despite a QTc ≥ 500 ms even after the FDA black box warning was issued.
- An adverse outcome in a patient receiving IV haloperidol with known prolonged QTc may have significant medico legal consequences.
- Interventions to improve physician prescribing and assure proper monitoring for this medication should be implemented.

References


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