Reviewer's report

Title: Catecholamine reversal: a case report on unexpected hypotension

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Reviewer: Amitesh Agarwal

Reviewer's report:

Major concern:
- In this case norepinephrine was used for hypotension along with dopamine. Norepinephrine has predominantly alfa-1 and beta -1 adrenergic receptor action, thus cause vasoconstriction and modest increase in heart rate. There is little, if any, stimulation of the beta -2 adrenergic receptor to cause peripheral vasodilation, therefore, if a-1 adrenergic effect is blocked (by risperidone), would not cause hypotension due to high beta -1 adrenergic receptor action and almost null beta -2 adrenergic receptor activity.
- Similarly, Dopamine have almost no beta -2 adrenergic receptor adrenergic activity and some alfa-1 receptor activity on higher doses. Dopamine increases blood pressure by beta -1 adrenergic receptor and dopaminergic activity, therefore, blockage of a-1 receptor in presence of dopamine should not cause hypotension due to it unaffected action on beta -1 adrenergic receptor and dopamine receptors.
- However, adrenaline has different mechanism of action, it has significant beta -2 adrenergic receptor activity, and alfa-1 activity, thus blockage of selective alfa-1 receptors may cause hypotension by uninhibited beta-2 receptor medicate vasodilatation.

Minor Concern:
- Was Serum cortisol checked to rule out adrenal insufficiency?

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