Amphetamine salts in hepatic impairment: a case of spontaneous subdural hemorrhage

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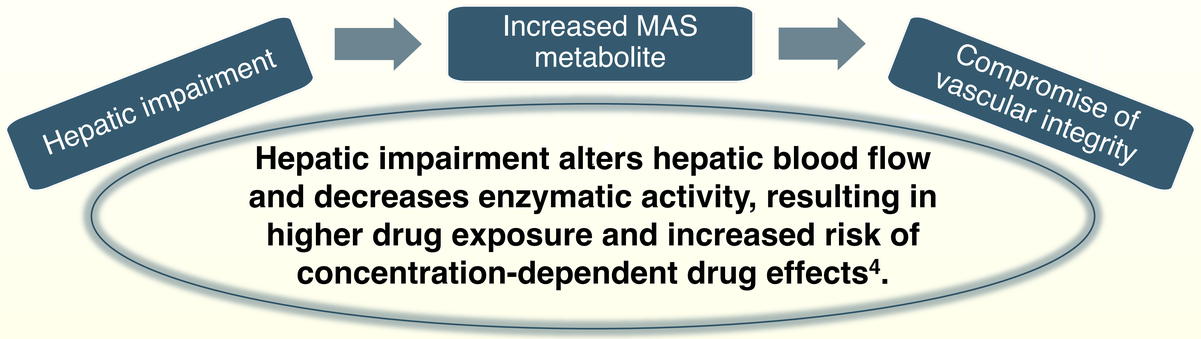
Background

- Valproic acid (VPA), which is hepatically metabolized, is contraindicated in patients with cirrhotic disease and is associated with hyperammonemia and delirium[1].
- Mixed amphetamine salts (MAS), also hepatically metabolized, have been linked to risk of stroke, both ischemic and hemorrhagic[2].
- The following case presents a patient with cirrhosis who developed hyperammonemia, delirium, and spontaneous subdural hemorrhage following initiation of VPA and MAS.

Discussion

Hepatic impairment results in pharmacodynamic and –kinetic changes to drugs and increases risk of adverse-drug reactions (ADRs). Up to 30% of patients with cirrhosis experience ADRs[4].

- One study demonstrated **most fatal strokes** in stimulant use to be **hemorrhagic**. No cases were associated with prescribed psychostimulants[2].
- A single case report exists regarding **atraumatic subdural hemorrhage** in amphetamine use[3].
- Pathogenesis is posited to be vascular changes due to **metabolite-related injury or catecholamine effects**[2,3].



Case Presentation

Ms. C was a 53 year old woman with alcoholic cirrhosis, endometriosis, bipolar disorder, and ADHD who presented with RUQ abdominal pain and emesis. She was admitted for inability to maintain PO intake.

Hospital Day 1
- Presented to ER for RUQ abdominal pain and n/v. Admitted for inability to maintain PO intake.
- Ammonia 51, INR 1.5

Hospital Day 2
- Patient noted to have waxing & waning mentation.
- Primary team started VPA 500mg QDAY and MAS 30mg BID.

Hospital Day 6
- Patient agitated & requiring nurse assistance. Lorazepam 2mg IM administered.
- Psychiatry consulted for emotional lability. Recommended to hold psychotropics and repeat ammonia.

Hospital Day 7
- Patient unresponsive & code stroke called.
- CT head showed subdural hematoma with significant midline shift.
- Emergent craniotomy and transfer to ICU.
- Ammonia 144, INR 1.6

Conclusions

- This patient with **hepatic impairment** experienced a life-threatening **adverse drug effect** in the form of **spontaneous subdural hemorrhage following MAS initiation.**
- Psychiatrists should remain vigilant in considering drug metabolism in patients with historical or current hepatic impairment.

References

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