Fomepizole – huh, yeah, what is it used for: an analysis of the National Poison Data System on fomepizole use over 12 years

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Background

- Fomepizole (4MP) is an antidote for toxic alcohol (TA) poisoning
- Significant limitations in diagnosing TA
- Treatment often done empirically

Objectives

- Compare key factors in patients where 4MP used for TA and non-TA poisonings

Methods

- Retrospective evaluation of National Poison Data System from 1/2010 - 12/2021
- Cases included if 4MP coded as "performed" or "recommended and performed"
- TA defined as case where methanol or ethylene glycol coded
- First substance analyzed
- If non-TA and alcohol specifically included, this was an "alcohol" case
- Compared reason for exposure, demographics, outcomes, level of care, co-ingested ethanol, and key clinical effects and interventions
- Continuous data analyzed with t-test; categorical compared with chi-square test

Results

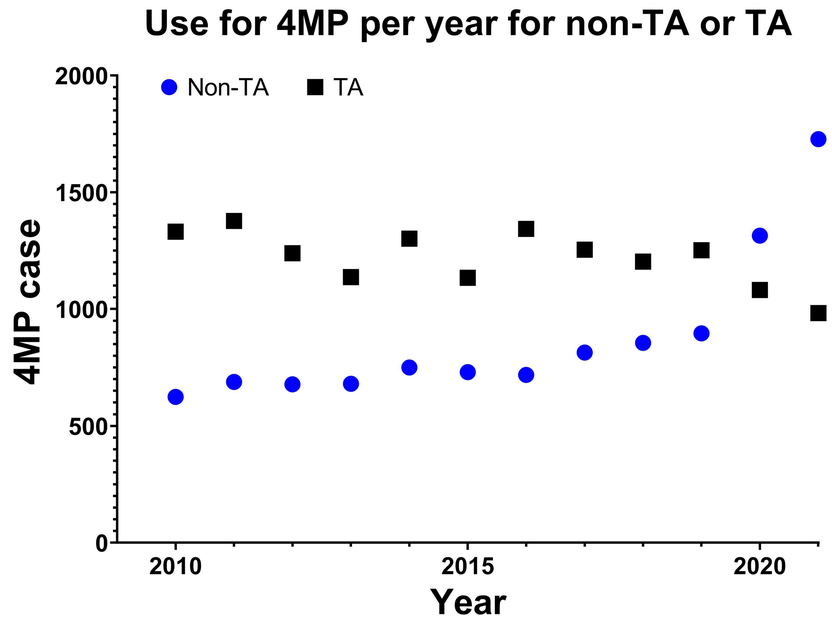
- **25,110** reports of 4MP use over included period
- Most use for TA (58.5%)

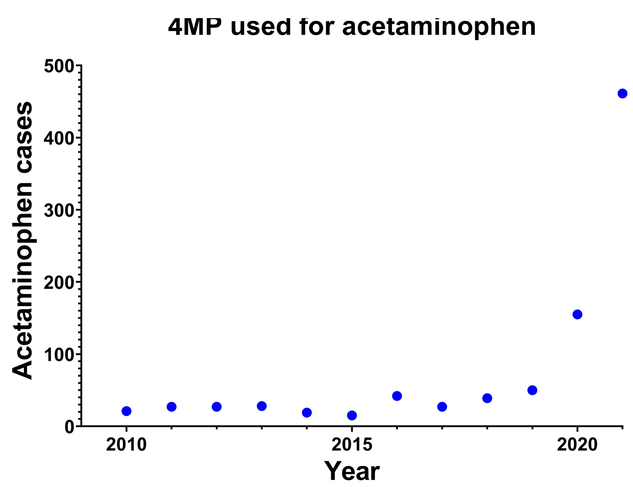
Key comparisons between TA and non-TA cases

Variable	TA	Non-TA
Age, years	43.3	39.8
Sex, male	65.7	58.2
Critical care unit admit	63.3	74.2
Call origination from HCF	93.3	79.2
Reason – self-harm	65.9	35.2
Acidosis	43.9	65.5
Increased SCr	21.1	34.8
Hemodialysis	34.7	19.4
CRRT	0.8	3.1
Sodium bicarbonate	25.5	33

*all p-values <0.001, numbers reported as percent unless otherwise noted

Non-TA substances	**N (%)**
Unknown drug/chemical	2744 (26.1)
Ethanol	2,590 (24.9)
Acetaminophen	911 (8.8)
Unknown non-drug	797 (7.7)
Isopropyl alcohol	755 (7.3)





Conclusion

A large minority of cases receive fomepizole for **non-TA** poisoning. In cases where no TA was coded, the **coded substance was primarily unknown in 26%** of cases and **ethanol made** up an additional **25%**. We need better tools for diagnosis of unknown metabolic acidosis.