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Comments on *Methanol poisoning during COVID-19 pandemic: a multicenter study of northern Iran*

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Dear Editor,

We read with great interest the article by Divsalar *et al.* on methanol poisoning during the COVID-19 pandemic in northern Iran.[1] The topic is clinically important, as misinformation and restricted access to regulated alcohol during public health crises have repeatedly precipitated large methanol outbreaks.[2-5] The authors provide valuable multicenter data; however, several methodological and interpretative aspects merit further consideration.

First, the hospital-based multicenter design introduces potential selection bias. Although including five referral hospitals improves external validity in Western Mazandaran, the sampling frame captures only patients who reached tertiary care and met diagnostic criteria.[1] In mass methanol poisoning events, the disease spectrum extends beyond hospitalised individuals.

Patients with fulminant toxicity may die before presentation, whereas those with mild symptoms may not seek formal care.[2-4] Consequently, the reported in-hospital mortality of 13.4% likely reflects outcomes among treated patients rather than community-level lethality. A similar underestimation has been described in prior outbreaks, as evidenced by linking hospital records to mortality registries.[4] Explicit acknowledgement of this limitation would aid interpretation.

Second, the cohort demonstrates notable clinical severity. Blurred vision was present in 92.7%, and metabolic acidosis in all patients, with 14.6% requiring intubation and 97.5% undergoing hemodialysis.[1] These findings provide a pragmatic profile of advanced methanol toxicity in specialised centres. However, the retrospective design relies on completeness of medical records and may be susceptible to information bias, particularly for time-dependent variables such as the ingestion-to-presentation interval.[1] During the COVID-19 pandemic, system-level constraints, including strained healthcare capacity, staff redeployment, and limited availability of antidotes and dialysis resources, could independently influence outcomes.[2–5] Adjustment for such environmental confounders was not reported and may partly explain the high dialysis rate observed.

Third, important diagnostic laboratory parameters were unavailable. The absence of reported anion gap and serum osmolality, attributed to reagent shortages, removed early markers such as osmolar gap that facilitate diagnosis in the latent phase of methanol poisoning.[1,2] Without these indices, clinicians may recognise toxicity only after metabolic acidosis develops, when neurological injury is already advanced. This constraint, combined with delayed presentation related to pandemic fears and sociocultural barriers, likely contributed to the high proportion of patients presenting with visual symptoms and severe acidosis. Earlier biochemical detection could potentially reduce the need for aggressive interventions such as universal hemodialysis.

Fourth, long-term neurological and visual outcomes were not described. Methanol-related formate toxicity commonly causes optic neuropathy and basal ganglia injury, leading to persistent visual impairment and disability among survivors.[2–4] The very high prevalence of blurred vision in this cohort suggests that most cases present after the latent phase.[1] Absence of follow-up data on visual acuity, optic atrophy, or neuroimaging sequelae limits assessment of the true burden of disease beyond hospital discharge. Characterisation of survivorship outcomes is essential for estimating disability and healthcare needs after outbreaks.

Finally, conclusions regarding determinants of mortality should be interpreted cautiously. The observational, hospital-based nature of the dataset precludes causal inference regarding delayed presentation or resource limitations.[1] Outcomes may reflect both disease severity at admission and contextual factors specific to pandemic-era healthcare delivery in western Mazandaran. Explicitly framing mortality and complication rates as hospital-based estimates would strengthen generalizability for clinicians and policymakers.

In summary, this multicenter report provides valuable insight into severe methanol poisoning during the COVID-19 era in northern Iran.[1] Consideration of selection bias, unmeasured system-level confounders, laboratory constraints, and absence of long-term outcomes is important when interpreting the reported mortality and intervention rates. Future prospective outbreak studies integrating toxicology capacity, standardised biochemical assessment, and longitudinal follow-up would better define the epidemiology and sequelae of methanol poisoning in resource-limited settings.[2-5]

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