Identifying High Priority Research Needs for Acetaminophen Use among Black/Hispanic Populations with Opioid Use Disorder and Liver Disease

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BACKGROUND

- Independently, opioid use disorder (OUD) and liver disease (LD) pose considerable clinical concerns.
- Naltrexone and acetaminophen have known hepatoxic properties when taken separately.
- Psychosocial factors that Black and Hispanic populations face in healthcare create disproportionate OUD and LD treatment.
- There are gaps in the literature for understanding how acetaminophen use among Black and Hispanic populations contribute to OUD and LD treatment outcomes.

METHOD AND CHARACTERISTICS

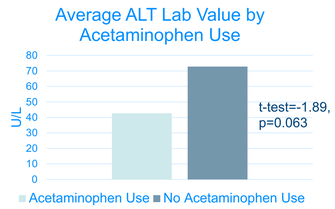
- Examined descriptive data of N=631 individuals with OUD and LD, prescribed medication for OUD (MOUD), in electronic health record (EHR).
  - n=578 with acetaminophen; n=53 without acetaminophen
  - Propensity score matching used to examine demographic and clinical characteristic differences by acetaminophen use.
- Conducted literature review and consulted with industry experts to identify and prioritize future research needs related to acetaminophen use among historically marginalized populations with OUD and LD.

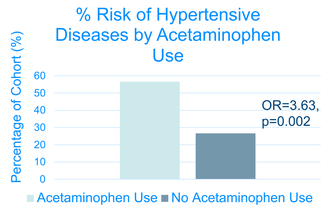
Patient demographic characteristics by acetaminophen use after propensity score matching*

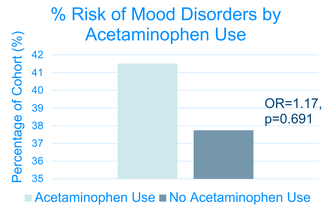
	Acetaminophen Use (n=53)	No Acetaminophen Use (n=53)	
	M (SD) / N (%)	M (SD) / N (%)	p-value
Age	50.4 (13.9)	50.2 (14.3)	0.929
Race			
White	39 (73.59%)	51 (96.23%)	0.001
Black or African American	14 (26.42%)	10 (18.87%)	0.353
Ethnicity			
Not Hispanic or Latino	53 (100%)	51 (96.23%)	0.153
Unknown Ethnicity	0 (0%)	10 (18.87%)	0.001
Sex			
Male	27 (50.94%)	26 (49.06%)	0.846
Female	26 (49.06%)	27 (50.94%)	0.846

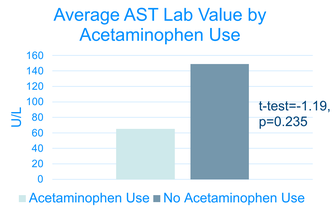
*Propensity score matching balanced groups by age and sex. Indicator code and indicators with 0% after matching were excluded.

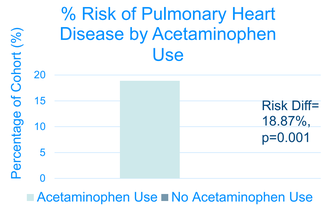
RESULTS

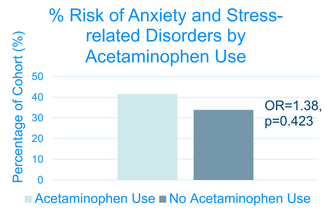












More research is needed to address medical and social disparities in prescribing practices and acetaminophen use among *historically marginalized individuals* with *opioid use disorder* and *liver disease*.

Themes from Literature and Experts

Literature	Psychiatrists/ Addiction Researchers (2)	Pharmacists (2)	Substance Use Therapist	Senior Research Psychiatrist	Psychologist/ Addiction Researcher
• In the US, Hispanics have highest risk of developing Non-Alcoholic Fatty Liver Disease (1), and Blacks are the most likely to develop Hepatitis C. (2) • Blacks/Hispanics with OUD less likely than White counterparts to receive OUD treatment. (3) • Naltrexone and acetaminophen are metabolized by the same enzymes; inhibition of these enzymes could cause drug toxicity. (4) • Acetaminophen and Naltrexone may cause enhanced glutathione depletion/hepatotoxicity. (5) • Technologies are being developed to measure Naltrexone and acetaminophen in blood plasma. (6) • No published studies report ethnoracial differences in medication management for patients with OUD + LD.	• Careful consideration of Naltrexone for OUD + LD needed because Naltrexone can exacerbate liver damage. • No known published guidelines on liver function levels, but generally if ALT/AST are 2x normal levels, proceed with caution. • Important to consider when LD develops; Hepatitis C commonly co-occurs with OUD, this can lead to other liver conditions. • Because there is concern with Naltrexone and liver function, important to examine acetaminophen use because of hepatoxic effects. • Clinicians may not be aware of potential drug interactions if they do not ask about over the counter drug use – conducting research is one way to identify clinically significant interactions.	• Pharmacists may consult with healthcare team on appropriate treatment. • Software enables pharmacists to to search drug interactions. • No formal database or system to find detailed information on drug interactions with pre-existing conditions (e.g., LD). • There is an interest in having a centralized database on OUD, MOUD, and other drug interactions.	• Disproportionately low rate of treatment uptake/retention in Blacks/Hispanics compared to Whites. • Hispanic community is high risk for LD; may lack access to healthcare knowledge/resources. • Few providers speak and deliver interventions in Spanish. • Politics/culture impact treatment uptake; acculturation, nation of origin impact outcomes. • Other treatment barriers: job insecurity, lack of healthcare insurance, lack of accommodating facilities. • Lack of access to treatment can lead to improper drug management. • PCPs need to ensure patients with LD have citizenship/are on LD treatment before MOUDs. • Most MOUD practitioners know potential risks, but little published research. • Risk for developing LD after starting MOUDs and pain medications. • Patients with OUD are not given much information on the risks of LD. • Future studies need to incorporate lived experiences.	• Naltrexone and acetaminophen are commonly taken together for pain. • Often cannot replace acetaminophen with other medications (e.g., nonsteroidals) because increased risk of bleeding; acetaminophen may be preferred for geriatric populations. • No known interactions between Naltrexone and acetaminophen; both are hepatoxic but little evidence-based literature on the subject. • No concrete, numerical guidelines for liver enzyme function; are guided by vague terms such as “elevated significantly.” • May be safe for patient to take continuous dose of Naltrexone and acetaminophen if AST and ALT are carefully monitored. • Have to consider the costs and benefits of warning patients about acetaminophen and Naltrexone co-use.	• Rate of opioid use among African Americans is high; more research is needed to determine whether LD develops before or after opioid use initiation in African Americans. • Need to consider social/cultural factors that contribute to interactions with medical professionals (e.g., African Americans less likely to go to the doctor due to historical harms).

RECOMMENDATIONS

Future Research Needs

Hepatoxicity of Acetaminophen and Naltrexone Co-Use

Clinical Relevance, Training, and Guidelines for Assessing Liver Function with Acetaminophen and Naltrexone

Sociocultural Impacts on Dissemination of Information, Treatment and Outcomes for Historically Marginalized People with Opioid Use Disorder and Liver Disease

Understanding How Causation and Timing of Liver Disease are Associated with Opioid Use Disorder and Treatment Outcomes

REFERENCES

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