

Pain Management in Patients with Cirrhosis

Drug metabolism in cirrhotic patients is complex and influenced by hepatocyte function, hepatic blood flow and plasma protein concentrations all which are highly variable among individuals with cirrhosis.

ACETAMINOPHEN	NSAIDS	OPIOIDS
<p>FIRST LINE analgesic for patients with cirrhosis!</p> <p>Reduced dose of 2g/day is considered safe.</p> <p>Largely metabolized by glucuronidation which is less affected in cirrhosis.</p> <p>Chronic daily acetaminophen use has limited data.</p>	<p>Thought of as “less toxic” but are contraindicated in patients with cirrhosis.</p> <p>Metabolized by CYP enzymes which are typically more affected in cirrhosis.</p> <p>Cirrhotic patients rely on prostaglandins to maintain renal function. NSAIDS inhibit prostaglandins leading to decreased GFR and rise in creatinine.</p> <p>Can precipitate hepatorenal syndrome.</p> <p>Increase risk of variceal bleeding.</p>	<p><u>Oxycodone</u></p> <p>Relies on CYP enzymes for metabolism to active metabolite which leads to decreased analgesic effect in cirrhosis</p>
		<p><u>Morphine</u></p> <p>Undergoes significant first pass metabolism which may be reduced in cirrhosis due to shunting → increased oral bioavailability.</p> <p>Neurotoxic metabolite that can lead to seizures.</p>
		<p><u>Hydromorphone</u></p> <p>Opioid of choice in the setting of renal and hepatic function.</p> <p>Does not require metabolism to active metabolite.</p> <p>Has significant first pass metabolism → higher oral bioavailability</p> <p>Metabolites have minimal neurotoxicity.</p>
		<p><u>Fentanyl</u></p> <p>When studied in patient with well compensated cirrhosis, fentanyl had similar effects at similar doses when compared to healthy control despite high rate of hepatic extraction.</p> <p>Limited data in decompensated liver failure and transdermal patches.</p>
		<p><u>Tramadol</u></p> <p>Reduced formation of active metabolite and decreased analgesic effect.</p> <p>Lowers seizure threshold.</p>

Klinge M, Coppler T, Liebschutz JM, Dugum M, Wassan A, DiMartini A, Rogal S; The Assessment and Management of Pain in Cirrhosis. *Current Hepatology Reports*. 2018; 17:42-51

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