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"Is it safe to have a drink while taking medication?"

A common question for pharmacists during the holiday season involves the safety of alcoholic beverages for people taking prescription medication. Alcohol has the potential to interact with many medications either by pharmacokinetic mechanisms (e.g., changes in metabolism of the medication or alcohol) or by pharmacodynamic mechanisms (e.g. additive sedative effects). Alcohol can also affect the disease state for which the medication is being used (e.g. alcohol-induced hypoglycemia). It is estimated that up to 25 percent of emergency admissions may involve alcohol-drug interactions.[1]

The following table provides information on the potential for interaction between alcohol and common medications. Keep in mind that most research on these interactions has been with chronic heavy alcohol use.[1] Pharmacokinetic interactions are less likely to be significant at moderate drinking levels but pharmacodynamic interactions remain a valid concern.[1] Moderate drinking is defined as one drink per day for adult women and two drinks per day for adult men.[2] Canadian low-risk drinking guidelines recommend no more than two drinks a day, 10 per week for women, and three drinks a day, 15 per week for men, with an extra drink allowed on special occasions.[3] One drink is a 12-oz beer, a 4-oz glass of wine, or a 1.5-oz glass of distilled spirits e.g. whiskey, vodka, gin.[2]

Medication and alcohol interaction[1,2,4,5,6]

Medication	Mechanism of Interaction	Comments / Counseling
Analgesics		
Acetaminophen	Chronic heavy use of alcohol → increased toxic metabolites → hepatotoxicity	• Moderate alcohol use safe if normal liver function. • Warn patients who consume three or more alcoholic drinks a day to avoid taking large or prolonged doses of acetaminophen.
ASA/NSAIDS	Increased risk of GI ulceration	• Moderate alcohol use safe if normal liver and renal function.
Opioids	• Additive sedative and respiratory depression effects	• Limit or avoid alcohol use. • Caution about risk of increased drowsiness, lack of alertness, and impaired co-ordination. • Blood alcohol levels within legal limits may still be unsafe with CNS depressants such as opioids.

Antibiotics - Very few interact with alcohol		
Metronidazole *A few case reports with isoniazid, nitrofurantoin, ketoconazole, and trimethoprim/sulfamethoxazole but clinical significance is questionable*	• Disulfiram-like interaction (flushing, headache, nausea, vomiting, sweating)	• Uncertainty about how frequently this interaction actually occurs but patients should be warned about the possibility of symptoms if they do drink. • To avoid, recommend no alcohol while taking metronidazole and for at least 24 hours after it is stopped.
Isoniazid	• Increased risk of hepatotoxicity • Chronic alcohol use: increased isoniazid metabolism → decreased isoniazid effectiveness	
Anticoagulants		
Warfarin	• <u>Acute heavy use (binge drinking)</u> inhibited metabolism → increased risk of bleed • <u>Chronic heavy use (alcoholism)</u> increased metabolism → decreased effectiveness → increased risk of clot	• Moderate alcohol use safe if normal liver function. • Patients should **avoid consuming large amounts of alcohol** over a short period of time (i.e., binge drinking). • Educate patient to report any signs of bleeding including pain, swelling, headache, dizziness, weakness, prolonged bleeding from cuts, increased menstrual flow, nosebleeds, bleeding of gums from brushing, unusual bleeding or bruising, red or brown urine, or red or black stools.
All	• Intoxication increases risk of falls → increased risk of bleed	
Anticonvulsants		
Carbamazepine, ethosuximide, gabapentin, phenobarbital, phenytoin, sodium valproate, tiagabine	• **Moderate drinking** does not appear to cause clinically relevant changes in the serum levels	

Carbamazepine, phenytoin, phenobarbital	• **Chronic alcohol use**: → increased metabolism → decreased seizure protection	• Caution patients about increased seizure risk if 3 or more drinks consumed per occasion (highest risk 7 to 48 hours after last drink).
All	• Additive CNS depressant effects	• Caution about risk of increased drowsiness, lack of alertness, and impaired co-ordination.
Antidepressants		
TCAs	• Additive sedative effect • Inhibition of 1st pass metabolism of some agents → increased effect of TCA	• Amitriptyline, doxepin, maprotiline, trimipramine more likely to cause sedation. • Toxic effects of TCAs → seizures, arrhythmias.
SSRIs	• No serious interactions with moderate alcohol doses.	• Safest class of antidepressants when combined in large quantities with alcohol (suicide, overdose).
Antidiabetics		
Hypoglycemics	• Additive risk of hypoglycemia	• Avoid alcohol or limit to one drink occasionally. • Monitor for hypoglycemia if alcohol is used.
Metformin	• Increased lactic acid production → increased risk of lactic acidosis with high alcohol dose	• Encourage alcohol consumption be kept within moderate amounts.
CNS Depressants		
First generation antihistamines (e.g. chlorpheniramine, diphenhydramine, hydroxyzine)	• Additive CNS depression with alcohol	• Alcohol enhances the side effects of these agents→ drowsiness, sedation, lack of alertness, and impaired co-ordination. • Elderly more susceptible. • Not anticipated with second generation agents e.g. loratadine, fexofenadine. (Cetirizine may be an exception.)

First generation antipsychotics	• Additive CNS depression • Increased risk of extrapyramidal symptoms	• Caution patient about increased sedation, lack of alertness, and impaired co-ordination. • Avoid or limit alcohol to one or two drinks occasionally.
Atypical antipsychotics	• Additive CNS depressions • Additive orthostatic hypotensive effects	
Sedatives /hypnotics	• Additive CNS depression with alcohol	• Caution about enhanced drowsiness, sedation, and decreased coordination.
Cardiovascular Agents		
Nitrates e.g.isosorbide dinitrate, nitroglycerin	• Additive vasodilation	• Increased risk of hypotension, fainting. • Patients should not hesitate to use nitroglycerin if needed when drinking but should take extra precautions e.g. sit or lie down after administration .
Gastrointestinal Agents		
H_2- receptor antagonists Cimetidine, famotidine, nizatidine, ranitidine	• Conflicting reports of increased alcohol levels due to inhibition of alcohol dehydrogenase in stomach – not likely to have significant effect.	• Caution patient that alcohol could worsen condition being treated.

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Dec 18, 2014
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