



Drug Therapy for Cirrhosis

Agent	Notes
Prophylaxis of variceal bleeding	
β-Blockers (propranolol, nadolol)	Decrease of portal pressure gradient by splanchnic vasoconstriction and reduction of cardiac output. Titrate to 25% decrease in resting heart rate. May be combined with isosorbide mononitrate.
Isosorbide mononitrate	Decrease of portal pressure gradient. Can be given when β-blocker not tolerable. For added benefit, should be used in combination with β-blockers, if possible.
Treatment and prophylaxis of ascites	
Spironolactone	Aldosterone antagonist. Used first-line or second-line in combination with furosemide; suggest to keep ratio at 100 mg spironolactone:40 mg furosemide.
Furosemide	Loop diuretic. Used in combination with spironolactone.
Albumin (after large volume paracentesis)	Volume expansion. For every liter removed in excess of 5 liters use 6.25 g of albumin iv up to a total of 50 g. May prevent circulatory failure after large volume paracentesis. The use of albumin is controversial and has not been shown to prolong survival. The cost of using albumin in excess of 50 g per may be prohibitive.
Prophylaxis of infections admitted for GI bleed	
Norfloxacin, Ciprofloxacin	Less expensive than quinolone-amoxicillin combination
Quinolone plus amoxicillin-clavulanic acid	IV antibiotics can be given when patient is NPO or vomits. Initially iv during acute bleed, then followed by oral.
Treatment and prophylaxis of SBP	

Cefotaxime	For treatment of SBP (ascites PMN count >250 cells/ μ L)
Ciprofloxacin, norfloxacin, Trimethoprim/sulfamethoxazole	For SBP prophylaxis
Prevention of renal failure	
Albumin	Volume expansion. May be only intervention to prevent HRS. Proven effective only for patients with SBP.
For vitamin deficiency	
Folate, thiamine, vitamin K, multivitamin	Important in alcoholics and other patients with poor nutrition. Vitamin K may be given im when absorption is impaired (such as biliary obstruction). With multivitamins, avoid iron supplementation, high-dose vitamin A.
Hepatic encephalopathy	
Lactulose, lactitol	Nonabsorbable disaccharide: increased fecal nitrogen excretion. Titrate to two to three soft bowel movements per day, avoid diarrhea. First-line therapy.
Neomycin	Nonabsorbable antibiotic: reduction of gut bacteria. Not much used because of side effects. Requires annual auditory testing if used long-term. Second-line therapy.
Metronidazole	Absorbable antibiotic: reduction of gut bacteria. Long-term safety unknown; Second-line therapy.
Vancomycin	Nonabsorbable antibiotic: reduction of gut bacteria. Can be used when second-line therapy fails. Expensive; not evaluated on long-term basis.
Medications for symptom control	
Cholestyramine	Ionic resin, binds intraluminal bile acids and other anions. Reduces pruritus. First-line agent; unpalatable; may interfere with absorption of other medications (digoxin, thyroxin, penicillins, propranolol).
Naltrexone	Opioid antagonist. May reduce pruritus. Self-limited opioid withdrawal-like syndrome possible. Second-line agent, limited experience.
Ursodeoxycholic acid	Bile acid, lowers endogenous bile acid levels. May reduce pruritus in PBC. With cholestyramine, give the two drugs at least 8 hours apart
Diphenhydramine hydrochloride, diphenhydramine hydrochloride	Antihistamine. May reduce pruritus. Adjunct, especially for nocturnal pruritus.

Amitriptyline

Tricyclic antidepressant. Low-dose is often sufficient for mild to moderate cases of insomnia.

Acetaminophen

Noncentrally acting analgesic. Pain control. Liver toxicity reported in patients who drink alcohol.

GI = gastrointestinal; HRS = hepatorenal syndrome; im = intramuscular; iv = intravenous; po = oral; PBC = primary biliary cirrhosis; SBP = spontaneous bacterial peritonitis.