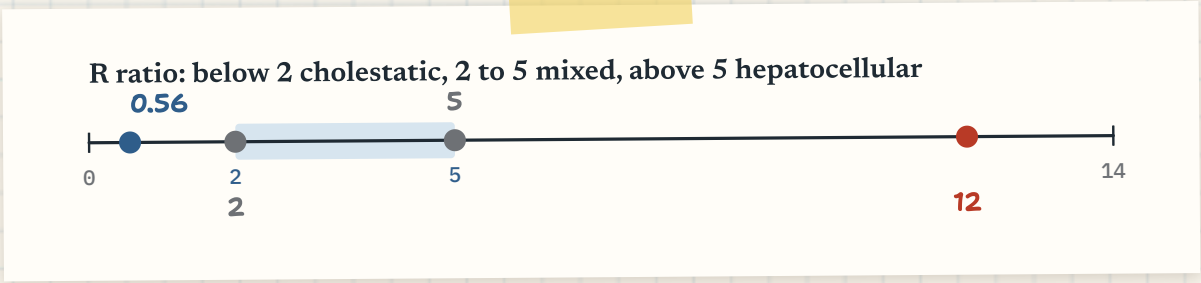
Liver function tests

Pattern first, then function



Step by step

1. Name the pattern: ALT, AST or ALP, GGT
2. Mixed? Calculate the R ratio
3. Check GGT if ALP is raised
4. Judge function with albumin and INR

R RATIO

(ALT / ULN) ÷ (ALP / ULN)

above 5 hepatocellular; below 2 cholestatic; 2 to 5 mixed

Question	Markers
Hepatocellular injury	ALT, AST lead; ALP mild
Cholestasis	ALP, GGT lead; conjugated bilirubin up
Liver source of ALP	Raised GGT confirms it
Synthetic function (slow)	Albumin, half-life about 20 days
Synthetic function (fast)	INR, factor VII, half-life of hours

Injury pattern versus function

Rule of thumb

Enzymes show injury, not function

Albumin is slow, INR is fast

AST:ALT below 1 usual, above 2 alcohol

Exam traps

- Enzymes do not show whether the liver still works.
- Albumin and INR can be normal in early or compensated disease.
- In cholestasis a high INR may only be vitamin K lack.

Liver function tests: hepatocellular vs cholestatic pattern

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/gi-physiology-pathology/liver-function-test-patterns

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
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