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## Hepatorenal syndrome

Hepatorenal syndrome is a condition in which there is progressive kidney failure that occurs in a person with cirrhosis of the liver. It is a serious complication that can lead to death.

### Causes

Hepatorenal syndrome occurs when the kidneys stop working well in people with serious liver problems. Less urine is produced by the body, so waste products that contain nitrogen build up in the bloodstream (azotemia).

The disorder occurs in up to 1 in 10 people who are in the hospital with liver failure. It leads to kidney failure in people with:

- Acute liver failure
- Alcoholic hepatitis
- Cirrhosis
- Infected abdominal fluid (peritonitis)

Risk factors include:

- Blood pressure that falls when a person rises or suddenly changes position (orthostatic hypotension)
- Use of medicines called diuretics ("water pills")
- Gastrointestinal bleeding
- Infection
- Recent abdominal fluid removal (paracentesis)

### Symptoms

Symptoms include:

- Abdominal swelling due to fluid (called ascites, a symptom of liver disease)
- Mental confusion
- Muscle jerks
- Dark-colored urine (a symptom of liver disease)
- Decreased urine output

- Nausea and vomiting
- Weight gain
- Yellow skin (jaundice, a symptom of liver disease)

## Exams and Tests

This condition is diagnosed after testing to check for other causes of kidney failure.

A physical exam does not detect kidney failure directly. However, the exam will very often show signs of chronic liver disease, such as:

- Confusion (often due to hepatic encephalopathy)
- Excess fluid in the abdomen (ascites)
- Jaundice
- Other signs of liver failure

Other signs include:

- Abnormal reflexes
- Smaller testicles
- Dull sound in the belly area when tapped with the tips of the fingers
- Increased breast tissue in men (gynecomastia)
- Sores (lesions) on the skin

The following may be signs of kidney failure:

- Very little or no urine output
- Fluid retention in the abdomen or extremities
- Increased BUN and creatinine blood levels
- Increased urine specific gravity and osmolality
- Low blood sodium
- Very low urine sodium concentration

The following may be signs of liver failure:

- Abnormal prothrombin time (PT)
- Increased blood ammonia level
- Low blood albumin
- Abdominal ultrasound shows ascites
- Signs of hepatic encephalopathy (an EEG may be done to diagnose this condition)

## Treatment

The goal of treatment is to help the liver work better and to make sure the heart is able to pump enough blood to the body.

Treatment is about the same as for kidney failure from any cause. It includes:

- Stopping all unnecessary medicines, especially ibuprofen and other NSAIDs, certain antibiotics, and diuretics ("water pills")
- Having dialysis to improve symptoms
- Taking medicines to improve blood pressure and help your kidneys work better; infusion of albumin may also be helpful
- Placing a shunt known as transjugular intrahepatic portosystemic shunt (TIPS) to relieve the symptoms of ascites (This may also help kidney function, but the procedure can be risky.)
- Surgery to place a shunt from the abdominal space to the jugular vein to relieve some symptoms of kidney failure (This procedure is risky and is rarely done.)

## Outlook (Prognosis)

The outcome is often poor. Death often occurs due to an infection or severe bleeding (hemorrhage).

## Possible Complications

Complications may include:

- Bleeding
- Damage to, and failure of, many organ systems
- End-stage kidney disease
- Fluid overload and heart failure
- Coma caused by liver failure
- Secondary infections

## When to Contact a Medical Professional

This disorder most often is diagnosed in the hospital during treatment for a liver disorder.

## Alternative Names

Cirrhosis - hepatorenal; Liver failure - hepatorenal; HRS

## References

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