TABLE 4. Interpretation of SAAG in Discriminating the Cause of Ascites

SAAG ≥ 1.1 g/dL Reflects Portal Hypertension	SAAG < 1.1 g/dL Excludes Portal Hypertension
Potential cause of ascites	Potential cause of ascites
Ascites in cirrhosis	Peritoneal carcinomatosis
Ascites related to massive liver metastasis	Tuberculosis peritonitis
Ascites related to liver involvement in right heart failure	Other clinical conditions

Abbreviation: SAAG, serum albumin ascites gradient.

In patients with cirrhosis, ascites can be graded according to the amount of fluid accumulated in the abdominal cavity and classified according to response to treatment (Table 5).[19] No treatment is recommended for grade 1 ascites, as there is no evidence that it improves patient outcomes. Response to therapy and subsequent outcome in patients with grade 2 or 3 ascites depends on several factors such as the underlying cause of cirrhosis; feasibility and effectiveness of therapy to alter the natural course of cirrhosis; presence of superimposed complications such as renal failure, hyponatremia, and spontaneous bacterial peritonitis (SBP); and adherence of the patient to dietary sodium restriction and diuretics.

Guidance Statements

- A diagnostic paracentesis should be performed in all patients with new-onset ascites that is accessible for sampling.
- The initial laboratory investigation of ascitic fluid should include ascitic fluid neutrophil count, ascitic fluid total protein, ascitic fluid albumin, and serum albumin to calculate the serum-ascites albumin gradient.

DIETARY SODIUM RESTRICTION AND DIURETIC THERAPY

Moderate dietary sodium restriction (2 g or 90 mmol/day) should be prescribed to achieve a negative sodium balance and net fluid loss. Fluid restriction is not indicated unless hyponatremia is present. Patient education for sodium restriction is essential to maximize adherence while avoiding malnutrition and sarcopenia.[23-25] Instructions about a sodium-restricted diet should include advice on sodium contents of preprepared meals, avoiding adding salt to cooked meals, and guarding against nutritional deficiency.[23] A formal consultation with a dietician should be considered.

In most patients with cirrhosis presenting with ascites, dietary sodium restriction alone is insufficient and diuretic therapy is necessary. The patient should be made aware that daily monitoring of body weight, preferably at the same time of the day, is essential in assessing the efficacy of diuretics and preventing their adverse effects. The peritoneal membrane's ability to reabsorb ascites from the abdominal cavity is limited to approximately 500 mL per day. Thus, in a patient without peripheral edema, weight loss exceeding 0.5 kg per day may result in plasma volume contraction, predisposing the patient to renal failure and hyponatremia. In those with edema, weight loss up to 1 kg/day may be tolerated.[19,26] In addition, patients should understand the need for laboratory monitoring (e.g., serum electrolyte concentrations), particularly during the first weeks of treatment.

Assessment of 24-hour urinary sodium excretion may be useful to guide therapy; in the absence of renal dysfunction, sodium excretion lower than the intake (e.g., 80 mmol/day) indicates an insufficient diuretic dose. Persistent ascites despite adequate urinary sodium excretion indicates dietary indiscretion. When a 24-hour urine collection is not feasible, a random "spot" urine sodium concentration that is greater than the potassium (K) concentration correlates well with 24-hour urine sodium excretion.[27,28] When the spot urine sodium (Na)/K ratio is >1, the patient should be losing fluid weight,[28] and, if not, dietary noncompliance should be suspected. If the spot urine Na/K ratio is ≤1, there is insufficient natriuresis, and an increase in diuretics should be considered.

Aldosterone antagonists (e.g., spironolactone) and loop diuretics (e.g., furosemide, torsemide, bumetanide) are the mainstay of diuretic treatment of cirrhotic ascites.[29,30] Two studies addressing the best way to use these diuretics showed that for the first episode of ascites, treatment with aldosterone antagonists alone generated an adequate response with few side effects,[29,30] whereas those with long-standing ascites responded better to a combined diuretic treatment.[31] The recommended initial dose of spironolactone is 100 mg/day, which can be progressively