Certificate Programme in Palliative Care for Liver Disease

Assessment of Patients with Liver Disease

Ascites – accumulation of fluid in the peritoneal cavity, a common complication of advanced liver disease. Related terms: diuretics, paracentesis, portal hypertension. Clinical assessment includes abdominal girth measurement, shifting dullness, and ultrasound confirmation. In palliative care, the focus is on symptom relief; large-volume paracentesis can provide rapid reduction of abdominal discomfort and dyspnea. Example: a 68-year-old man with cirrhosis reports increasing abdominal distension that limits his ability to sit upright; therapeutic paracentesis removes 5 L of fluid, improving his breathing and allowing him to eat more comfortably. Challenges include recurrent ascites, risk of electrolyte imbalance, and the need for albumin replacement to prevent circulatory dysfunction after large-volume drainage.

Albumin – a plasma protein synthesized by the liver, essential for oncotic pressure maintenance and drug binding. Related terms: hypoalbuminemia, colloid solutions, nutritional status. Low serum albumin (Anorexia – loss of appetite frequently observed in chronic liver disease due to altered taste, early satiety from ascites, and metabolic derangements. Related terms: cachexia, nutritional counseling, appetite stimulants. Assessment uses dietary recall, weight trends, and validated scales such as the Simplified Nutritional Appetite Questionnaire. A practical application is the introduction of small, frequent meals enriched with protein and calories, coupled with oral nutritional supplements. Example: a patient with decompensated cirrhosis reports eating less than half a meal per day; after a dietitian's intervention, his caloric intake rises from 800 kcal to 1300 kcal, stabilizing his weight. Challenges include managing refractory anorexia when hepatic encephalopathy or severe ascites limit oral intake, and balancing the risk of hepatic encephalopathy from high protein loads with the need for nutritional support.

Asterixis – a flapping tremor of the hands, indicative of metabolic encephalopathy, often seen in hepatic encephalopathy. Related terms: hepatic encephalopathy, neuropsychiatric assessment, lactulose. The bedside test involves asking the patient to extend the arms and dorsiflex the wrists; irregular, brief lapses indicate asterixis. In palliative care, detecting asterixis helps differentiate reversible metabolic disturbances from irreversible neurocognitive decline, guiding treatment intensity. For example, a patient with mild asterixis may benefit from titrating lactulose, whereas absent asterixis in a patient with profound confusion may signal end-stage disease where comfort-focused measures are prioritized. Challenges include inter-observer variability, the influence of concurrent medications (e.g., benzodiazepines), and the need for rapid assessment when patients are unable to cooperate.

Bilirubin – a breakdown product of hemoglobin processed by the liver; elevated levels reflect cholestasis or impaired conjugation. Related terms: jaundice, direct bilirubin, indirect bilirubin. Serum bilirubin is a core component of prognostic scores such as MELD. In palliative assessment, rising bilirubin may indicate disease progression, bile duct obstruction, or drug-induced cholestasis, prompting symptom-focused

interventions like pruritus control with cholestyramine. Example: a patient with bilirubin of 12 mg/dL experiences intense itching; topical emollients and oral cholestyramine reduce pruritus, improving sleep. Challenges involve differentiating bilirubin elevation due to reversible obstruction (e.g., gallstones) from irreversible hepatic failure, and addressing the limited efficacy of pharmacologic antipruritic agents in severe cholestasis.

Child-Pugh Score – a classification system using five clinical variables (encephalopathy, ascites, bilirubin, albumin, INR) to stage chronic liver disease. Related terms: prognostic models, MELD, liver transplantation. Scores range from A (well compensated) to C (decompensated), guiding therapeutic intensity. In palliative contexts, a Child-Pugh C score signals high mortality risk, supporting discussions about goals of care and prioritizing symptom control over aggressive interventions. For instance, a patient with a Child-Pugh score of 11 (Class C) may forego invasive procedures like TIPS and instead receive diuretics and analgesia for comfort. Challenges include the subjective nature of encephalopathy and ascites grading, and the potential for rapid score changes that require frequent reassessment.

Coagulopathy – impaired clotting due to reduced synthesis of clotting factors, commonly reflected by an elevated INR or prolonged PT. Related terms: bleeding risk, vitamin K, fresh frozen plasma. Assessment includes laboratory coagulation profiles and clinical evaluation for bruising or mucosal bleeding. In palliative care, coagulopathy influences procedural decisions such as safe timing of paracentesis or central line placement. Example: a patient with INR = 2.5 undergoing therapeutic paracentesis may receive prophylactic fresh frozen plasma to reduce bleeding risk, though evidence for routine correction is limited. Challenges involve balancing the risk of iatrogenic volume overload from plasma transfusion against the need to prevent procedural hemorrhage, and recognizing that correction of INR does not always translate to improved hemostasis in cirrhosis.

Confusion – an acute alteration in cognition, attention, or orientation, often multifactorial in liver disease. Related terms: hepatic encephalopathy, delirium, metabolic disturbances. Assessment utilizes the Confusion Assessment Method (CAM) and bedside neurological examination. Distinguishing hepatic encephalopathy from other delirium causes (infection, medication) directs appropriate treatment. For example, a patient with confusion and asterixis improves after lactulose dose escalation, confirming hepatic encephalopathy; conversely, a patient with fever and leukocytosis may require antibiotics for infection-related delirium. Challenges include overlapping symptomatology, the impact of sedative medications, and limited time for comprehensive evaluation in rapidly deteriorating patients.

Delirium – an acute, fluctuating disturbance of consciousness and cognition, common in end-stage liver disease. Related terms: hypoactive delirium, hyperactive delirium, antipsychotics. Diagnosis follows DSM-5 criteria, emphasizing inattention and altered level of arousal. Management prioritizes reversible causes (electrolyte imbalance, infection) and, when appropriate, low-dose haloperidol or atypical antipsychotics for symptom control. Example: a patient with hypoactive delirium exhibits withdrawn behavior and reduced speech; after correcting hyponatremia and initiating a low-dose haloperidol, his engagement improves, allowing participation in family conversations. Challenges include the high prevalence of hypoactive

delirium that may be missed, the risk of over-sedation, and limited evidence for antipsychotic safety in severe hepatic impairment.

Encephalopathy – a broad term encompassing any diffuse brain dysfunction; hepatic encephalopathy (HE) is a specific subtype due to liver failure. Related terms: ammonia, neuropsychological testing, lactulose. Grading systems such as West Haven classify severity from 0 (no abnormality) to 4 (coma). In palliative care, early identification of grade 1–2 HE enables outpatient interventions, while grade 3–4 may necessitate hospitalization or hospice transition. Example: a patient with grade 2 HE presents with disorientation and asterixis; initiating rifaximin alongside lactulose reduces ammonia levels and improves mental status. Challenges include variability in ammonia-symptom correlation, patient tolerance of bowel-cleansing agents, and deciding when HE becomes refractory and best managed with comfort-focused measures.

Fatigue – a pervasive sense of tiredness not relieved by rest, affecting quality of life in chronic liver disease. Related terms: sarcopenia, sleep hygiene, energy conservation. Assessment uses patient-reported outcome measures such as the Fatigue Severity Scale. Practical strategies include scheduling activities during peak energy periods, encouraging light exercise to preserve muscle mass, and addressing contributory factors like anemia or depression. For instance, a patient reports daytime exhaustion; correction of iron deficiency anemia and counseling on pacing activities lead to a measurable reduction in fatigue scores. Challenges involve differentiating fatigue from depression, the limited efficacy of pharmacologic stimulants in liver disease, and the progressive nature of fatigue as disease advances.

Gastric Varices – dilated submucosal veins in the stomach, secondary to portal hypertension, posing a bleeding risk. Related terms: endoscopy, beta-blockers, variceal ligation. Screening endoscopy identifies high-risk varices; primary prophylaxis may include non-selective beta-blockers (e.g., propranolol). In palliative care, the emphasis is on preventing catastrophic hemorrhage while minimizing medication side effects. Example: a patient with contraindication to beta-blockers due to severe asthma receives endoscopic variceal ligation, reducing bleeding risk without compromising respiratory status. Challenges include balancing the risk of hypotension from beta-blockers against their protective effect, and the limited utility of invasive procedures in patients with limited life expectancy.

Hepatic Encephalopathy – a neuropsychiatric syndrome caused by accumulation of neurotoxins, primarily ammonia, in the setting of liver dysfunction. Related terms: lactulose, rifaximin, West Haven criteria. Diagnosis requires exclusion of other causes of altered mental status and may be aided by bedside psychometric testing. Treatment follows a stepwise approach: identify precipitants, reduce ammonia production with lactulose, and add rifaximin for refractory cases. Example: a patient with recurrent HE receives lactulose titrated to achieve two to three soft stools daily; subsequent addition of rifaximin decreases hospital readmissions from 3 per year to 1 per year. Challenges include patient adherence to lactulose regimens, side effects such as bloating, and the need for dose adjustments in renal impairment.

Hepatocellular Carcinoma – primary liver cancer arising in the context of chronic liver disease. Related terms: surveillance ultrasound, AFP, transarterial chemoembolization. Assessment includes imaging

(contrast-enhanced MRI/CT) and serum alpha-fetoprotein (AFP) measurement. In palliative programs, early detection facilitates discussions about curative versus supportive options. For example, a 62-year-old with cirrhosis undergoes routine ultrasound revealing a 2 cm lesion; multidisciplinary review determines that best supportive care aligns with the patient's goals, focusing on pain control and psychosocial support. Challenges involve limited sensitivity of AFP, the psychological impact of cancer diagnosis in an already frail patient, and coordinating oncologic and palliative services.

Jaundice – yellow discoloration of skin and sclera due to elevated bilirubin. Related terms: cholestasis, pruritus, phototherapy. Clinical assessment includes visual inspection and serum bilirubin quantification. In palliative care, jaundice may cause distressing itching and psychosocial discomfort. Management may involve symptomatic relief with antihistamines, cholestyramine, or opioid rotation if pruritus interferes with sleep. Example: a patient with bilirubin = 15 mg/dL reports severe pruritus; administration of oral cholestyramine 4 g three times daily reduces itching intensity, allowing better rest. Challenges include limited efficacy of antipruritic agents in severe cholestasis and the need to differentiate jaundice due to disease progression from reversible obstructive causes amenable to intervention.

Liver Biopsy – percutaneous or transjugular sampling of hepatic tissue for diagnostic purposes. Related terms: coagulation status, imaging guidance, histopathology. Indications include unexplained liver dysfunction or staging of fibrosis. In patients with advanced disease, the risk-benefit ratio must be carefully weighed; coagulopathy and ascites increase complication risk. Example: a patient with unknown etiology of liver failure and INR = 1.8 undergoes a transjugular biopsy under fluoroscopic guidance, avoiding peritoneal bleeding. Challenges include obtaining adequate tissue in the setting of severe fibrosis, the procedural pain burden for patients with limited tolerance, and the potential for post-procedure hemorrhage despite prophylactic measures.

MELD Score – Model for End-Stage Liver Disease; a prognostic algorithm using serum bilirubin, INR, and creatinine to predict 90-day mortality. Related terms: transplant priority, renal function, prognostication. Higher scores (> 20) indicate severe disease and guide discussions about eligibility for liver transplantation versus palliative focus. In the palliative context, the MELD score assists clinicians in framing realistic expectations. For instance, a patient with MELD = 25 is counseled about limited transplant options and the importance of advance care planning. Challenges include fluctuations in creatinine due to muscle wasting, the impact of acute kidney injury on score accuracy, and the emotional burden of presenting a numerical mortality estimate to patients and families.

Nutritional Assessment – systematic evaluation of dietary intake, body composition, and metabolic needs. Related terms: Subjective Global Assessment, sarcopenia, calorie counting. Tools such as the Royal Free Hospital Global Assessment or hand-grip dynamometry help identify malnutrition early. Practical application includes prescribing high-protein oral supplements, arranging dietitian follow-up, and monitoring weight trends. Example: a patient with a recent 5 % weight loss undergoes hand-grip testing showing reduced muscle strength; a tailored nutrition plan stabilizes weight and improves functional status. Challenges involve distinguishing fluid-related weight changes from true tissue loss, patient refusal of

supplements due to taste or satiety, and limited access to specialized nutrition services in some care settings.

Orthotopic Liver Transplant – surgical replacement of diseased liver with a donor organ. Related terms: transplant candidacy, immunosuppression, graft rejection. While curative, transplantation is not feasible for many patients with advanced disease, especially those with significant comorbidities or limited psychosocial support. In palliative programs, transplant eligibility assessments inform the timing of transition to comfort-focused care. Example: a 55-year-old with MELD = 22 is evaluated for transplant; psychosocial screening reveals lack of support, leading to a decision to prioritize palliative interventions. Challenges include navigating complex transplant wait-list criteria, managing patient expectations, and addressing the emotional impact of being deemed ineligible.

Palliative Sedation – the intentional use of medications to reduce consciousness for refractory distress when all other symptom-control measures have failed. Related terms: refractory dyspnea, midazolam, ethical considerations. Indications include uncontrolled pain, severe dyspnea, or intractable agitation. Dosing begins with low-dose benzodiazepines, titrated to achieve symptom relief while maintaining proportionality. For example, a patient with end-stage liver disease experiences intolerable dyspnea despite optimal opioids; a continuous infusion of midazolam at 0.5 mg/h alleviates distress, allowing family presence. Challenges involve distinguishing refractory from potentially treatable symptoms, ensuring informed consent, and addressing concerns about hastening death.

Quality of Life – a multidimensional construct encompassing physical comfort, psychological well-being, social relationships, and spiritual fulfillment. Related terms: patient-reported outcomes, WHOQOL, symptom burden. Assessment utilizes validated instruments such as the Chronic Liver Disease Questionnaire (CLDQ) or the EQ-5D. In liver palliative care, QoL scores guide individualized care plans, prioritizing interventions that align with patient values. Example: a patient scores low on the “fatigue” domain; targeted energy-conservation strategies and psychosocial counseling improve overall QoL despite unchanged disease trajectory. Challenges include variability in cultural interpretations of QoL, the influence of fluctuating symptoms on scores, and potential questionnaire fatigue in seriously ill patients.

Respiratory Distress – subjective sensation of breathlessness, often exacerbated by ascites, hepatic hydrothorax, or anemia in liver disease. Related terms: dyspnea scales, supplemental oxygen, opioids. Assessment employs the Modified Borg Scale or Visual Analogue Scale for dyspnea. Management may include low-flow oxygen, judicious use of opioids to reduce the central perception of breathlessness, and diuretics for fluid overload. For instance, a patient with hepatic hydrothorax receives a thoracentesis removing 800 mL fluid, resulting in immediate dyspnea reduction; subsequent low-dose morphine further alleviates residual breathlessness. Challenges involve balancing opioid-induced respiratory depression against dyspnea control, limited access to thoracentesis in home settings, and distinguishing dyspnea caused by hepatic causes from cardiac or pulmonary comorbidities.

Spontaneous Bacterial Peritonitis – infection of ascitic fluid without an evident intra-abdominal source.

Related terms: neutrocytic ascites, third-generation cephalosporins, prophylaxis. Diagnosis requires paracentesis with ascitic fluid polymorphonuclear leukocyte count ≥ 250 cells/μL. Prompt antibiotic therapy (e.g., cefotaxime) reduces mortality. In palliative care, early detection enables rapid symptom relief and may prevent septic shock. Example: a patient with fever and abdominal tenderness undergoes paracentesis revealing 300 cells/μL; intravenous cefotaxime resolves infection, and analgesia addresses abdominal pain. Challenges include the invasive nature of diagnostic paracentesis in frail patients, rising antibiotic resistance, and deciding when to limit aggressive antimicrobial therapy in the context of end-stage disease.

Transjugular Intrahepatic Portosystemic Shunt (TIPS) – radiologic creation of a channel between the portal and hepatic veins to reduce portal hypertension. Related terms: hepatic encephalopathy, variceal bleeding, procedural risk. Indications include refractory ascites and uncontrolled variceal hemorrhage. In palliative contexts, TIPS may be considered when symptomatic benefit outweighs procedural risk. For example, a patient with recurrent ascites unresponsive to diuretics undergoes TIPS, achieving ascites control and improved mobility. Challenges comprise the risk of precipitating hepatic encephalopathy, potential for hepatic decompensation, and the need for expertise not always available in community settings.

Upper Gastrointestinal Bleeding – hemorrhage occurring proximal to the ligament of Treitz, often due to esophageal or gastric varices in cirrhosis. Related terms: endoscopic band ligation, vasoactive drugs, blood transfusion. Initial assessment includes hemodynamic monitoring, laboratory studies, and urgent endoscopy. In palliative care, the goal is rapid stabilization and symptom control; endoscopic therapy may be employed if the patient's goals permit. Example: a patient with massive variceal bleeding receives octreotide infusion and endoscopic band ligation, achieving hemostasis and allowing transition to comfort-focused care. Challenges involve managing coagulopathy, balancing transfusion thresholds with volume overload risk, and aligning aggressive interventions with patient preferences.

Vascular Access – establishment of an intravascular route for medication delivery, fluid administration, or blood sampling. Related terms: peripheral IV, central line, hemodialysis catheter. In liver disease, thrombocytopenia and coagulopathy complicate line placement. Assessing vein quality, platelet count, and INR informs selection of peripheral versus central access. Practical application includes using ultrasound-guided peripheral cannulation to reduce insertion attempts and discomfort. Example: a patient with low platelet count (70×10^9/L) successfully receives a peripheral IV under ultrasound guidance, avoiding the need for a central line. Challenges comprise increased infection risk, potential for bleeding at insertion sites, and patient anxiety regarding invasive devices.

Water Retention – excess fluid accumulation manifesting as peripheral edema, ascites, or pleural effusion, driven by portal hypertension and hypoalbuminemia. Related terms: diuretics, sodium restriction, renal function. Assessment involves daily weight measurement, limb circumference, and evaluation of fluid shifts. Management includes loop diuretics (furosemide) combined with potassium-sparing agents (spironolactone), tailored to renal function and electrolyte status. For instance, a patient with refractory peripheral edema receives a furosemide 40 mg twice daily, resulting in a 2-kg weight loss and improved ambulation. Challenges include diuretic resistance, hyponatremia, and the need for albumin replacement

when large-volume paracentesis is performed.

Xerostomia – dry mouth sensation due to reduced salivary flow, often secondary to diuretic therapy or opioid use in liver disease. Related terms: oral hygiene, saliva substitutes, mucosal coating. Assessment includes patient self-report and examination for mucosal dryness. Interventions involve frequent sips of water, sugar-free lozenges, and prescription of saliva-stimulating agents such as pilocarpine when appropriate. Example: a patient on high-dose furosemide experiences oral dryness, leading to difficulty swallowing; introduction of a saliva substitute gel improves comfort and nutrition. Challenges include limited efficacy of pharmacologic agents in patients with hepatic impairment and the risk of exacerbating fluid overload with excessive oral fluid intake.

Y-90 Radioembolization – trans-arterial delivery of yttrium-90 microspheres to target hepatic tumors, providing internal radiation. Related terms: selective internal radiation therapy, hepatic metastases, dosimetry. While primarily a curative or disease-modifying therapy, in palliative settings it may be considered for symptom relief from tumor burden. For example, a patient with unresectable hepatocellular carcinoma experiences pain reduction after Y-90 therapy, allowing reduced opioid doses. Challenges involve the need for specialized interventional radiology facilities, potential radiation-induced liver disease, and careful patient selection when life expectancy is limited.

Zoonotic Infections – infections transmitted from animals to humans, such as hepatitis E or leptospirosis, which can precipitate acute liver injury. Related terms: exposure history, serology, preventive counseling. Assessment includes a thorough exposure history (e.g., contact with livestock, consumption of undercooked pork) and targeted laboratory testing. In palliative patients, identifying a zoonotic cause may influence infection control measures and antibiotic choices. Example: a patient with acute hepatitis after returning from a rural area tests positive for hepatitis E; supportive care and counseling on future exposure are provided. Challenges include low index of suspicion in urban populations, limited availability of specific serologic tests, and differentiating zoonotic hepatitis from other etiologies in patients with pre-existing chronic liver disease.