Dx: Rheumatic Heart Disease, Chronic

Code(s): I05 - I09

**Definition**
Postinflammatory scarring and contracture of the heart structures (most often the mitral) from rheumatic fever.

**Etiology**
Chronic rheumatic heart disease is a systemic inflammatory disease that develops from an untreated Group A Streptococcus throat infection that causes an immune response characterized by connective tissue inflammation most commonly involving the heart and blood vessels.

**Signs & Symptoms**
1. Mitral valve stenosis and insufficiency
2. Aortic valve stenosis and insufficiency
3. Tricuspid valve stenosis and insufficiency
4. Myocarditis
5. Pericarditis

**Treatment Activity**
1. Beta channel blockers
2. Corticosteroids
3. Diuretics
4. Open valvotomy and valvuloplasty
5. Valve replacement

**Medications**
1. Anti-inflammatory agents
2. Corticosteroids
3. ACE inhibitors
4. Diuretics
5. Beta blockers
6. Digoxin

**Lab Diagnoses**
1. ECG
2. Chest x-ray
3. Echocardiogram
4. Cardiac catheterization
**A69.2 Lyme Disease**

**DEFINITION**
A tick-transmitted, spirochetal, inflammatory disorder best recognized clinically by an early skin lesion and erythema chronicum migrans (ECM) (a reddened, bulls-eye (target) pattern), that may be followed weeks to months later by neurologic, cardiac, or joint abnormalities.

**ETIOLOGY**
Causative organism: *Borrelia burgdorferi* transmitted to humans by ixodid ticks.

**SIGNS & SYMPTOMS**
1. Stage 1: Flulike symptoms and typical skin rash (erythema chronicum migrans)
2. Stage 2: Small skin lesions, migratory joint, muscle and tendon pain, fatigue, malaise, myocarditis with arrhythmia and heart block, Bell’s palsy, encephalitis or meningitis, peripheral neuropathy, transverse myelitis and mononeuritis multiplex
3. Stage 3: Arthritis, chronic synovitis, encephalopathy, peripheral neuropathy, acrodermatitis chronicum atrophicans (months to years later)

**TREATMENT ACTIVITY**
1. Antibiotic therapy
2. Crutches, aspiration, or synovectomy for chronic knee effusions

**MEDICATIONS**
1. Integumentary manifestations: 
   - Doxycycline, tetracycline, amoxicillin, or erythromycin
2. CNS manifestations: Doxycycline, tetracycline, ceftriaxone (IV), penicillin (IV), or amoxicillin
3. Cardiac manifestations: Doxycycline, tetracycline, amoxicillin, ceftriaxone (IV), or penicillin (IV)
4. Arthritis: Doxycycline, tetracycline, or amoxicillin

**LAB DIAGNOSTIC TESTS**
1. Antibody detection in serum by indirect immunofluorescence assay (IFA) or ELISA; IgM positive first 2-4 weeks after erythema chronicum migrans onset
2. Rheumatoid and antinuclear factors are present
3. Synovial fluid: 25,000 white cells/μL
Dx: Reye’s Syndrome

Code(s): G93.7

**DEFINITION**
An acute, and sometimes fatal, postviral (usually influenza or varicella) childhood illness characterized by encephalopathy and fatty infiltration of the liver.

**ETIOLOGY**
The pathogenesis is not completely understood; suspected etiologies include:
1. Salicylate toxicity from ingestion of aspirin following viral illness
2. Hyperammonemia
3. Elevated serum free fatty acids

**SIGNS & SYMPTOMS**
1. Intractable vomiting, lethargy
2. Hyperventilation, delirium, hyperactive reflexes
3. Progressively deeper levels of coma
4. Elevated arterial ammonia level and free fatty acids, lactic acidosis
5. Children: Hypoglycemia
6. Seizures, flaccidity
7. Failure of liver and brain function due to fatty infiltration
8. Respiratory arrest

**TREATMENT ACTIVITY**
1. Monitor vital signs for increasing lethargy
2. Monitor fluid intake and output to prevent fluid overload
3. Monitor serum ammonia, blood glucose
4. Maintain seizure precautions
5. Monitor for intracranial pressure (ICP)

**MEDICATIONS**
1. Mannitol or furosemide
2. Glycerol
3. Anticonvulsant

**LAB DIAGNOSTIC TESTS**
1. Blood: Elevated serum ammonia, fatty acid, and lactate
2. Coagulation studies: Prolonged PT and PTT
3. Serum salicylate level
4. Liver function studies: Elevated SGOT and SGPT
5. Liver biopsy
6. CSF analysis
Dx: Hepatorenal Syndrome

Code(s): K76.7

**Definition**
The rapid deterioration of kidney function that is associated with acute or chronic liver disease. Hepatorenal syndrome (HRS) is a relatively common complication of cirrhosis and is often fatal. HRS is classified in two types:
- Type 1 HRS: Rapidly progressive kidney failure with high mortality rate
- Type 2 HRS: Slower onset and progression with diuretic-resistant ascites before developing kidney failure

**Etiology**
1. Cirrhosis of the liver
2. Fulminant liver failure
3. Portal hypertension

**Signs & Symptoms**
1. Altered liver function
2. Circulatory abnormalities
3. Kidney failure
4. Jaundice, altered mental status, ascites

**Treatment Activity**
1. Liver transplant
2. IV albumin
3. Transjugular intrahepatic portosystemic shunt (TIPS)
4. Liver dialysis
5. Peritoneal dialysis

**Medications**
1. Midodrine
2. Octreotide
3. Vasoconstrictors
4. Dopamine
5. Misoprostol
6. Antibiotics
7. Plasma volume expanders

**Lab Diagnostic Tests**
1. Decreased glomerular filtration rate
2. Abdominal ultrasound
3. Paracentesis with ascites fluid cultures
4. Serum creatinine level
5. Urine volume and osmolarity
6. CBC with differential
7. Liver function tests
8. Alpha-fetoprotein level
9. Echocardiography
Dx: Necrotizing Fasciitis

Code(s): M72.6

**DEFINITION**
A soft tissue infection that causes necrosis of fascia and subcutaneous tissue. The groin, abdomen, and extremities are the most common sites of this infection. The original site of infection may be a minor wound, such as a cut or bruise, then the infection very quickly spreads along the layers of tissue that surround muscle. This disease, commonly known as “flesh-eating disease,” can destroy human tissue at a rate of 3 centimeters per hour and may end in death.

**ETIOLOGY**
Group A beta-hemolytic Streptococcus is the most common bacterial agent found in patients with this condition. Other infecting organisms include: Staphylococcus aureus, Clostridium perfringens, Vibrio vulnificus. One classification (there are other ways to classify (e.g., by organisms involved, progression of disease)) is classified into two types:
1. Type 1: Polymicrobial (infection by multiple organisms)
2. Type 2: Monomicrobial (infection by a single organism)

**SIGNS & SYMPTOMS**
1. Fever, nausea, vomiting, diarrhea
2. Severe pain and swelling at site of infection
3. Dusky discoloration of skin
4. Rapid heart rate
5. Smooth, tense, shiny skin at area of infection
6. Ulcerations, gas in infected tissues, and gangrene
7. Sepsis and organ failure in severe cases

**TREATMENT ACTIVITY**
1. Correction of metabolic abnormalities
2. Broad spectrum of IV antibiotics
3. Surgical debridement of all necrotic tissue
4. Hyperbaric oxygen therapy
5. Maggot debridement therapy
6. Amputation of limb

**MEDICATIONS**
1. IV antibiotics
2. Aminoglycoside

**LAB DIAGNOSTIC TESTS**
1. Blood chemistry: CBC with differential – elevated WBC with a left shift; low serum sodium; increased BUN
2. Routine and anaerobic tissue cultures
3. Imaging (x-ray, CT scan, MRI, ultrasound) to detect air within the tissues
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- Individual Version – Includes: DVD set, Workbook & Code Book + CM-12 CEUs, PCS-20 CEUs

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