

# Care After Liver Transplant

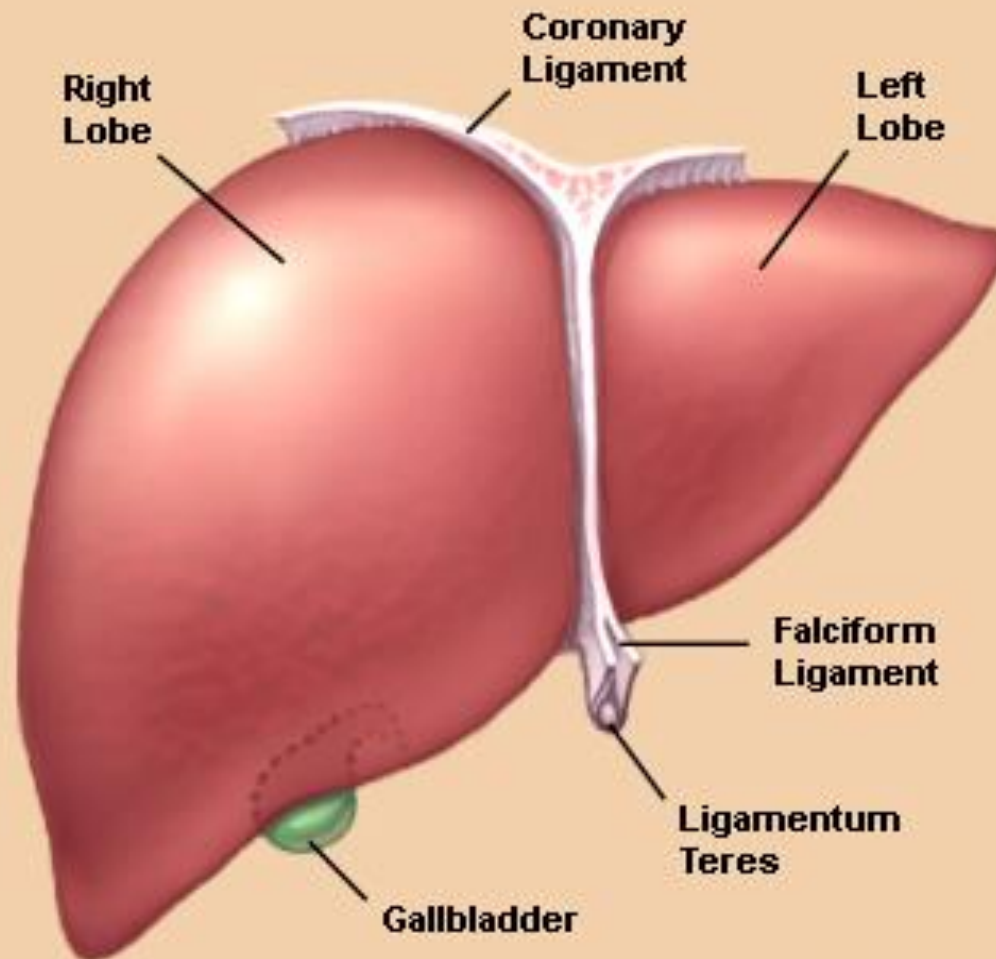
Tammy Kremers APRN, CNP

Liver Transplantation

Mayo Clinic Rochester

# Objectives

- Share with you what to expect after liver transplant surgery
- Discuss early post-transplant issues and management
- Discuss long-term post-transplant issues and management
- Unique issues for those transplanted for PSC



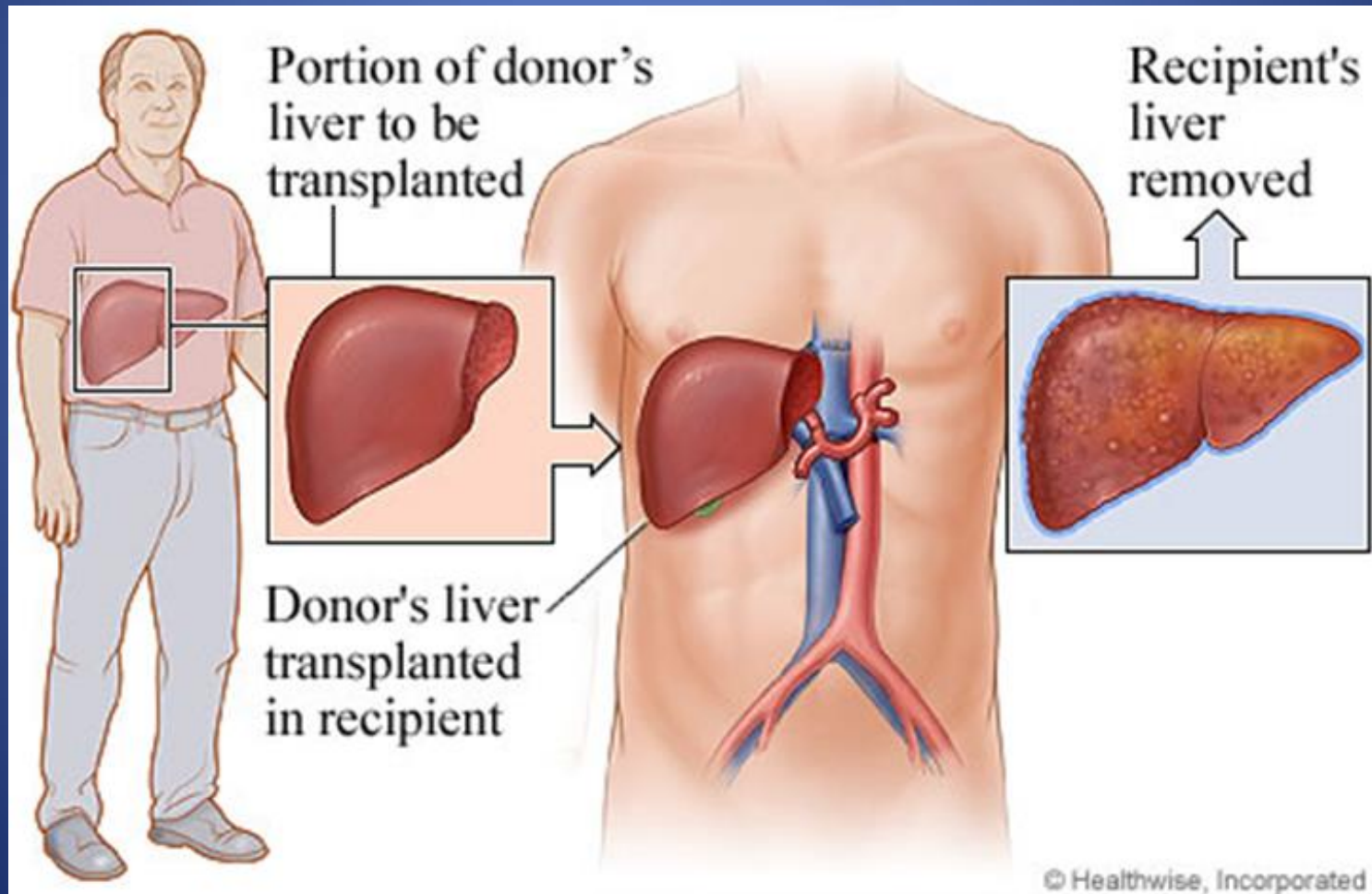
# Liver Transplant

- 17,000 people in US are awaiting liver transplant
- 2018: 8,250 liver transplants in US

# Liver Transplant

- Deceased donor (majority)
  - Long wait: death, cancer
- Living donor
  - Complex surgery
  - Donor complications: bile leak, infection, pain, ulcer, blood clots
  - Recipient complications: bile leak, biliary anastomotic stricturing
  - Cost

# Living Donor Liver Transplant



# Hospital Care

- Transplant Team
  - Surgeons, Hepatologists, Fellows, Transplant Nurses/Coordinators, Pharmacists, Dieticians, Social Workers
- Average Hospital Stay: 4-7 days
- Education: incision, drains, anti-rejection medications
- Tests: labs, ultrasounds, cholangiogram, liver biopsy

# Outpatient Care

- Liver Transplant Outpatient Clinic
  - Transplant Hepatologists, Transplant PA/NP, Transplant Nurse Coordinators, Surgeons, Pharmacists, Dietitians, Social Workers, Study Coordinators



- Clinic visits
  - Incision: staples, infection
  - Drains
  - Pain Management
  - Monitor labs
  - Medications: anti-rejection, preventative meds
  - Nutrition and Activity
  - Education: restrictions, medications, preventing infections/keeping yourself healthy

# Early Post-Transplant Issues

- Bleeding
- Blood clots
- Failure of the donated liver
- Biliary complications (leak, narrowing of anastomosis)
- Blood flow (narrowing of blood vessels)
- Pain
- Bowel function
- Nutrition
- Infection (incision, blood stream, opportunistic)
- Rejection

# Early Post Transplant

- Infection
  - Incision, urinary tract, bowel function, respiratory
  - Anti-rejection medications suppress the immune system
  - Prevention of opportunistic infections
    - Viral: cold sores, Cytomegalovirus
    - Bacterial: Pneumocystis Pneumonia
    - Fungal: Thrush

# Early Post Transplant

- Rejection
  - Common and treatable
    - 20-40%
    - Young and healthy immune system: higher risk
  - No symptoms
  - Elevated liver tests
  - Liver biopsy
  - IV steroids, IV Thymoglobulin

# Early Post Transplant

- Biliary Complications
  - Bile leak
  - Anastomotic Stricture

# Early Post Transplant

- Nutrition
  - Calories and Protein
  - Many have minimal appetite
    - Small, frequent meals
    - Nutritional supplements

# Early Post Transplant

- Bowel function
  - Constipation (pain medications, diet, activity)
  - Diarrhea (medications)
  - IBD: anti-rejection medications keep IBD symptoms well-controlled

# Early Post Transplant Tests

- Laboratory testing
  - Liver tests
  - Anti-rejection medications
  - Infection (blood stream, urinary, stool, opportunistic infections)



# Early Post Transplant Tests

- Ultrasounds
  - Blood flow
  - Fluid collections
  - Bile ducts

# Early Post Transplant Tests

- Cholangiograms
  - Bile duct anastomosis: narrowing or leak
- ERCP
  - If bile leak is identified, may require stenting across bile duct anastomosis
  - Living liver donor recipients have a higher risk for anastomotic narrowing (30%)

# Early Post Transplant Tests

- Liver Biopsies:
  - Diagnose rejection
  - Medication reaction
  - Infection
  - Bile flow issue

# Early Post Transplant

- Education
  - Medications
    - Anti-rejection
    - Infection prevention
  - Restrictions:
    - No lifting >10 pounds x 8 weeks after surgery
    - No driving initially (4 weeks) or on pain meds

# Early Post Transplant

- Education
  - Monitoring
    - Labs
    - Signs and Symptoms of Infection
  - Keeping Yourself Healthy
    - Nutrition
    - Exercise
    - Avoid smoking, alcohol
    - Maintaining Healthy Weight

# Early Post Transplant

- Return visits
  - Routine: 4 months, Annually
  - Elevated liver tests
  - If you are feeling unwell (infection, abdominal pain)

# Long Term Issues

- Decreased Kidney Function
- Skin Cancers
- Post-Transplant Lymphoproliferative Disorder
- Recurrent Disease
- Bone Health
- High Blood Pressure
- High Cholesterol
- Diabetes

# PSC After Liver Transplant

- Recurrence
  - 15-25%
    - 8% at 5 years
    - 22% at 10 years
  - No significant difference for deceased vs living donor recipients



# PSC After Liver Transplant

- Possibly associated with recurrence:
  - Higher MELD score at transplant
  - Biliary complication
  - Cholangiocarcinoma
  - Higher donor age

# PSC After Transplant

- Manage Symptoms
  - MRI/MRCP: dominant stricture to stent?
  - ERCP (stent, brushings)
  - URSO
  - Antibiotics
    - As needed for cholangitis
    - Rotating to prevent cholangitis

# PSC After Transplant

- Monitor for Cholangiocarcinoma
  - MRCP +/- ERCP
  - CA 19-9 (tumor marker)

# PSC After Transplant

- Liver Retransplantation

# Cholangiocarcinoma

- Highest Risk of Recurrence is early after transplant
  - CT scans of Chest, Abdomen and Pelvis, CA 19-9 (tumor marker)
  - Explant pathology
- Anti-rejection medications
- Oncology follow-up if indicated

# Inflammatory Bowel Disease

- Usually quiescent early after transplant
- Continue medications for IBD
- Yearly colonoscopies with surveillance biopsies

# Goal: Keep You Healthy

- We partner with you to keep you healthy
  - Good nutrition
  - Weight management
  - Exercise
  - Manage Diabetes, High Blood Pressure, High Cholesterol, IBD

# Partners for Life

