WELCOME TO
AK LIVER DISEASE ECHO

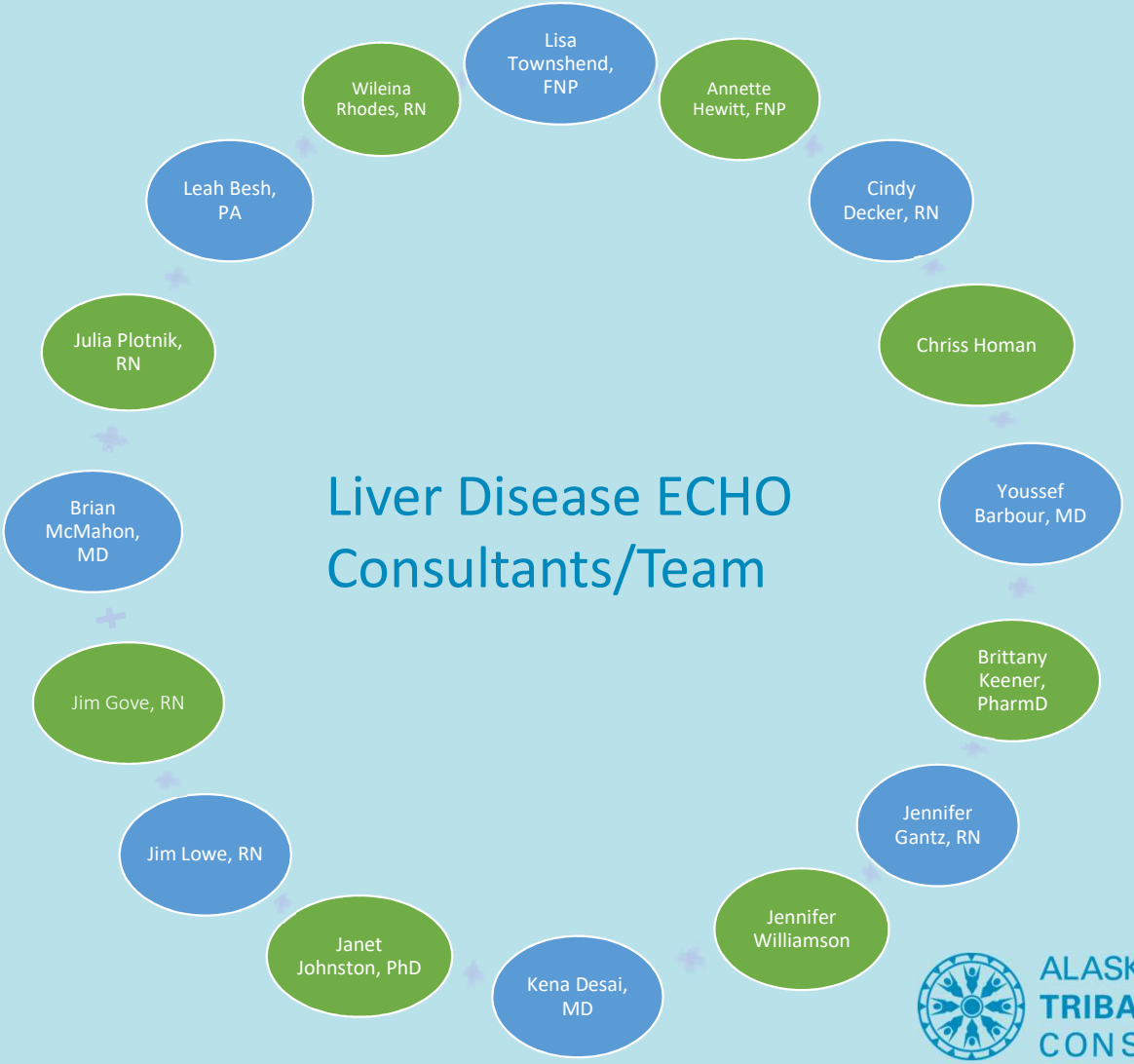
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

NPAIHB
Indian Leadership for Indian Health

This ECHO (Extension for Community Healthcare Outcomes) is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided from the HHS Secretary's Minority HIV/AIDS Fund.

What we do

- Provide education related to liver disease management
  - Didactic presentations
  - Patient case presentations and questions
  - Expert panelist case review
- 2023 Theme: How You Can Help Reduce Liver Disease Mortality and Morbidity
  - addressing challenges to HCV screening and linkage to care
  - screening for metabolic associated fatty liver disease
  - managing cirrhosis
  - safe medication prescribing, and
  - nutrition for liver health



ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Welcome to Alaska Liver Disease ECHO

Approved Provider Statements:

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

CPE Credit will be posted to the online CPE Monitor system within 60 days following completion of each activity when applicable.

The ANMC Joint Accreditation CE Program Portfolio additionally supports Behavioral Health (APA), Social Work (ASWB-ACE), and Dietitians (CPEU).

Contact Hours:

ANMC designates this activity for a maximum of 12 contact hours, including 3 total pharmacotherapeutics contact hours, commensurate with participation.

Financial Disclosures:

Youssef Barbour, MD & Lisa Townshend-Bulson, APRN / faculty for this educational event, are primary investigators in an ANTHC sponsored hepatitis C study funded in part by Gilead Sciences; Anne Fleetwood, faculty for this educational event, is a contractor with Tandem Diabetes Care. All of the relevant financial relationships listed for these individuals have been mitigated.

Requirements for Successful Completion:

To receive CE credit please make sure you have actively engaged in the entire activity, your attendance is recorded by the facilitator, and complete the course evaluation form found here: https://forms.gle/R8vibUZgMbRcoScw9

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ALASKA NATIVE MEDICAL CENTER

Being Alert to DILI

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Alaska Liver Disease ECHO
November 16, 2023

Conflict of Interest

- I have no conflict of interest to disclose

Objectives

- Identify etiology of drug-induced liver injury (DILI)
- Review the evaluation of suspected DILI
- Summarize the importance of care coordination with the interdisciplinary team

Test Your Knowledge

- True or False: Clinical presentations in DILI are mostly symptomatic.
- True or False: There are no specific tests available to diagnose DILI.
- True or False: DILI is clinically challenging to diagnose as it can mimic any acute or chronic hepatobiliary condition.

Introduction

- Drug-induced liver injury (DILI) is caused by medications (either prescription or OTC), herbal and dietary supplements, or other xenobiotics that result in abnormalities in liver tests or in hepatic dysfunction that cannot be explained by other causes.
- DILI is estimated to have an annual incidence of 10 to 15 per 10,000 to 100,000 persons exposed to prescription medications.
- About 44,000 people in the US will experience DILI annually, making it costly in terms of not only its toll on humans, but also healthcare expenditures.
- Medications account for >50% of acute liver failure cases in the US each year.
- Most cases of DILI are asymptomatic; however, the most common sign is jaundice.
- Treatment begins with removal of the offending agent, and the prognosis for recovery is usually favorable after discontinuation of the drug.

Etiology

- >1,000 medications and herbal compounds are known to cause hepatotoxicity
  - LiverTox database
  - Drug Induced Liver Injury Network (DILIN)
  - Drug Induced Liver Injury Rank (DILIrank) Dataset
- Intrinsic DILI – most commonly caused by acetaminophen
- Idiosyncratic DILI
  - Antibiotics (45.4%)
  - NSAIDs
  - Herbal and dietary supplements (16.1%)
  - Cardiovascular drugs (10%)
  - Central nervous system agents
  - Antineoplastic drugs

Risk Factors

- Genetics
- Age
  - Older or younger
- Gender
  - Female
- Race
- Pregnancy
- Malnutrition
- Gut microbiome
- Hormonal status
- Obesity
- Diabetes mellitus
- Comorbidities
  - Preexisting liver disease
  - HIV
- Smoking
- Alcohol consumption
- Infections
- Inflammatory episodes

Drug-Related Factors

- Daily dose
- Metabolic profile
- Class effect and cross-sensitization
- Drug interactions or polypharmacy
- Drugs with greater lipophilicity
- Drugs that undergo extensive hepatic metabolism
- Drugs metabolized by CYP2C9 or CYP2C19

Evaluation

- Diagnosis of exclusion
- History
  - Prescription, non-prescription/OTC, and herbal/dietary supplements
- Lab tests
  - ALT, AST, ALP, bilirubin, albumin, PT, INR, GGT
  - CBC, electrolytes, viral serologies, autoantibodies
- Imaging (ultrasound, MRI) can be helpful in cholestatic injury to exclude other biliary tract pathology

Evaluation

- Liver biopsy
  - Not necessary but can be useful in exclusion, especially if other causes of liver disease are suspected
- Biomarkers including metabolic enzymes, micro-RNA and cellular proteins have been a focus of research for diagnostic and prognostic evaluation of DILI
- Clinical prediction scores
  - RUCAM

Prognosis

- 90% recover after discontinuation of the offending agent
- 10% progress to requiring liver transplant
  - Following transplant survival is 66%
- 17% risk of progression to chronic liver disease
- DILI is the leading cause of acute liver failure in the US
  - Results in acute liver failure more often than viral hepatitis
  - Results from hepatocellular injury
  - Fatality rate of up to 50%
- Rate of chronic DILI is increasing
  - 15 to 20% of patients with acute DILI progress to chronic DILI
  - Mostly seen with prolonged cholestatic injury such as vanishing duct syndrome

Care Coordination

- Multidisciplinary approach
  - Clinicians
  - Pharmacists
  - Nurses
- Prevention begins with patient education on medications
  - Prescriptions, OTC, and herbal/dietary supplements
- Perform a thorough drug history when DILI is suspected

Conclusions

- DILI is an uncommon but potentially fatal adverse reaction to a drug
- Early recognition of drug toxicity is important to permit assessment of severity and monitoring for acute liver failure
- Diagnosis of exclusion
- Spontaneous recovery is seen in most patients after discontinuation of offending agent

Post-Test

- True or False: Clinical presentations in DILI are mostly symptomatic.
- True or False: There are no specific tests available to diagnosis DILI.
- True or False: DILI is clinically challenging to diagnosis as it can mimic any acute or chronic hepatobiliary condition.

References

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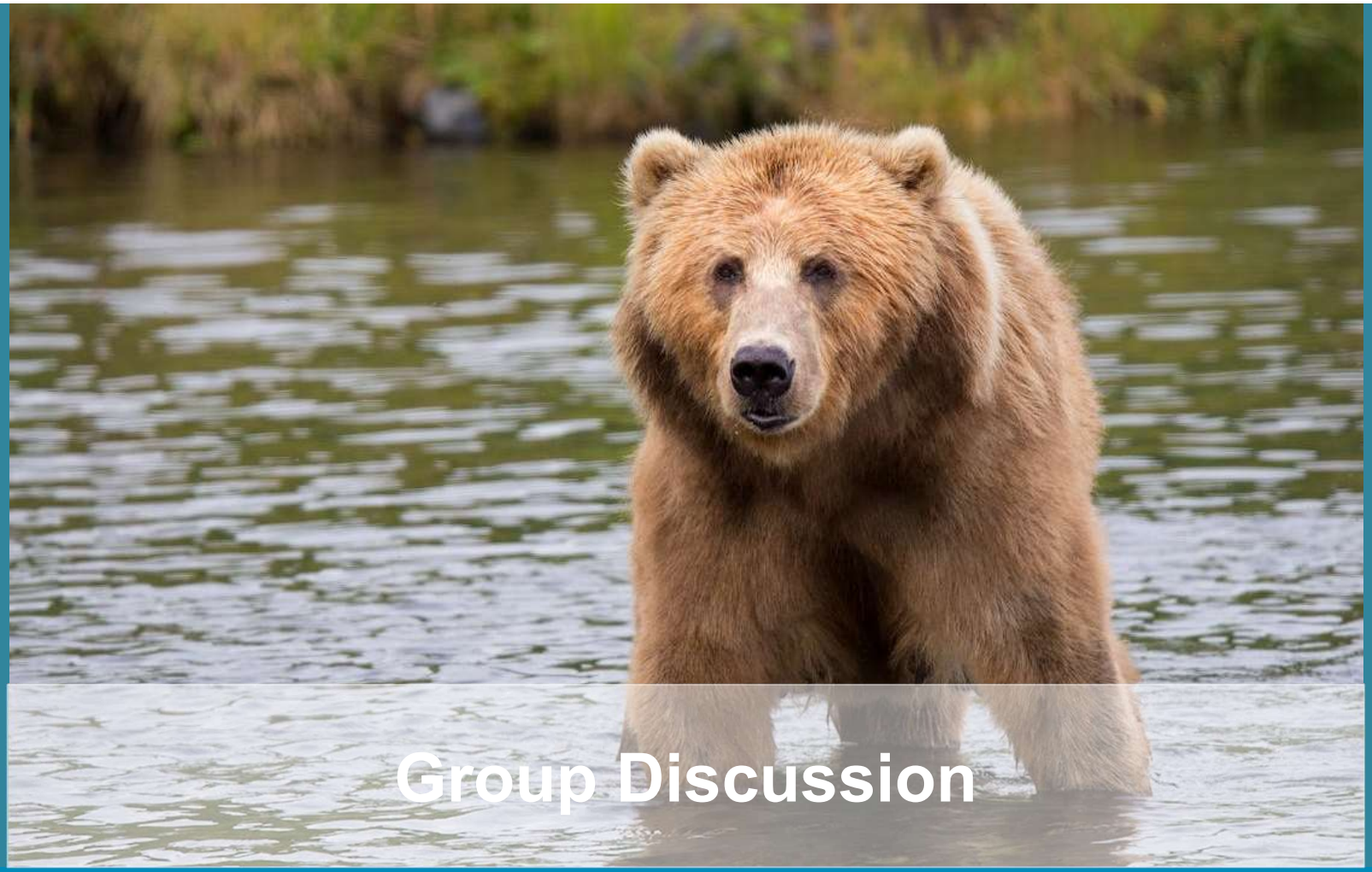

Group Discussion

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Case Presentation

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AK Liver Disease ECHO

- Third Thursday of every month from noon-1:00 PM AKST
- 1CE/CME offered per session
- www.anthc.org/AK-LD-ECHO
- 2023 Theme: Ways You Can Reduce Morbidity and Mortality from Liver Disease
  - December 21: The Current State of Liver Disease in Alaska
- www.anthc.org/AK-LD-ECHO

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Additional learning opportunities

- AK ID ECHO: HCV, HIV, PrEP, STIs
  - Second Tuesday of every month from noon-1:00 PM AKST
    - 1CE/CME offered per session
  - December 12: Congenital Syphilis presented by Jorge Mera, MD
  - anthc.org/AK-ID-ECHO
- LiverConnect Webinar Program
  - Second Tuesday of every month 8:00-9:00 AM AKST
    - Full-hour didactic topics on Liver Disease and related topics 1CE/CME offered
  - December 12: Ask Me Anything and Zebra Liver Disease Cases Above 60◦ N
  - anthc.org/what-we-do/clinical-and-research-services/hep/liverconnect

AK Liver Disease ECHO – Team Contacts

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