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WHISE



Pregnancy and Portal Hypertension Pearls and Pitfalls

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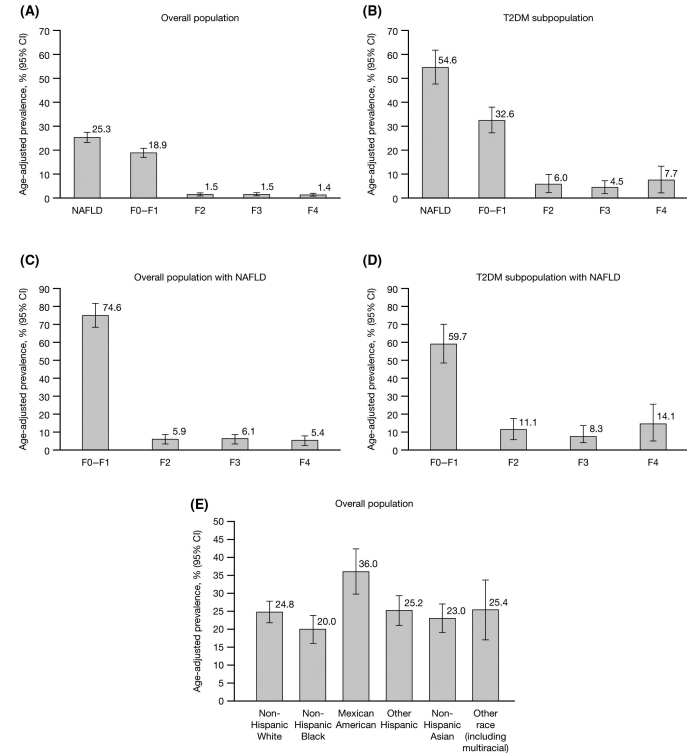
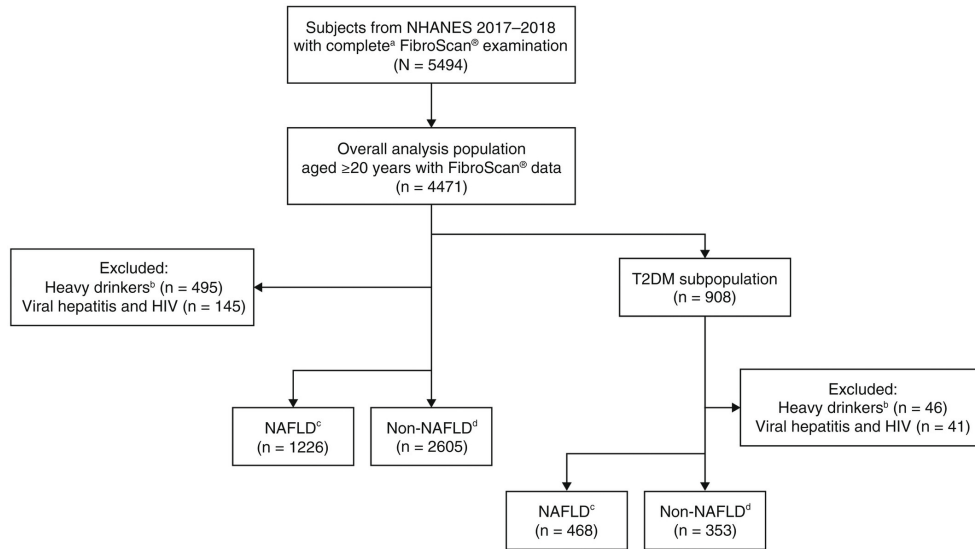
CLD Has Increased in Women of Child-Bearing Age

- NHANES → increase CLD in women 15 to 39 from 10.4% [1988-1994] to 24.9% [2007 to 2012]
 - Driven by NAFLD and alcohol associated liver disease
 - By death certificates, CLD and cirrhosis 6th most common cause of death between the age of 25-44 years in 2019 in the US
- Although maternal mortality from liver disease is uncommon, death certificate data shows an increase in maternal mortality from liver disorders.
 - US maternal mortality increased from 1.25 to 8.80 per 1,000,000 live births from 1999–2001 to 2016–2018
- Rising rates of childbirth in women with cirrhosis contributes,
 - 71% of which is secondary to NAFLD
- Fertility is normal with well compensated cirrhosis. This, combined with wide availability of assisted reproductive techniques makes pregnancy possible in this higher risk population.

NAFLD

- 18% NAFLD in women of reproductive age
- Pregnancies impacted by NAFLD tripled from 2007- 2015
- Retrospective data from the universal Canadian administrative health care data: NAFLD was the most common etiology for cirrhosis during pregnancy
 - 72.5% of pregnancies with cirrhosis

Predicting NAFLD Prevalence In the United States Using National Health and Nutrition Examination Survey 2017–2018 Transient Elastography Data and Application of Machine Learning



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Prevalence of NAFLD:

Overall Population

21.3% in 20–39-year-old

~ 36.0% in 40–59 60–74, and ≥75 yo

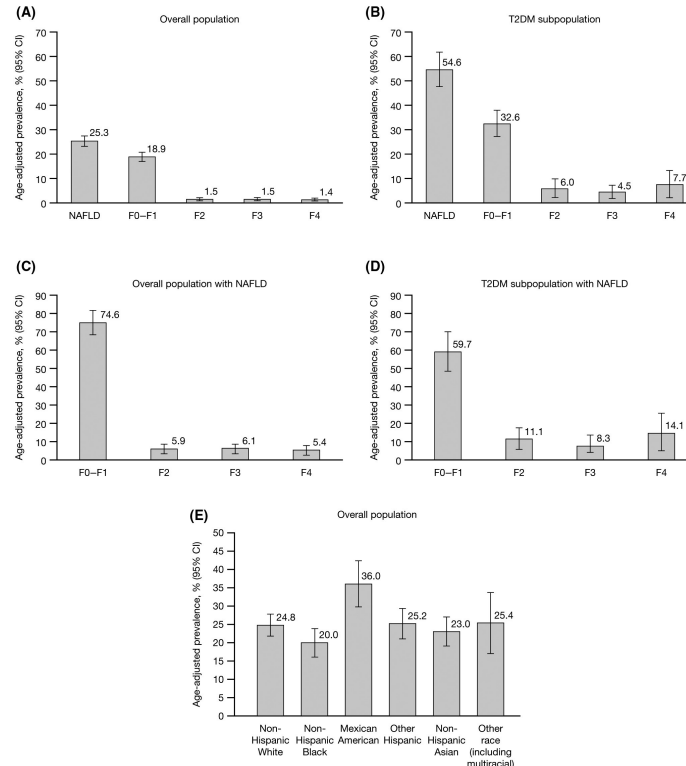
T2DM

70.5% in 20–39-year-old

68.0% 40–59 yo

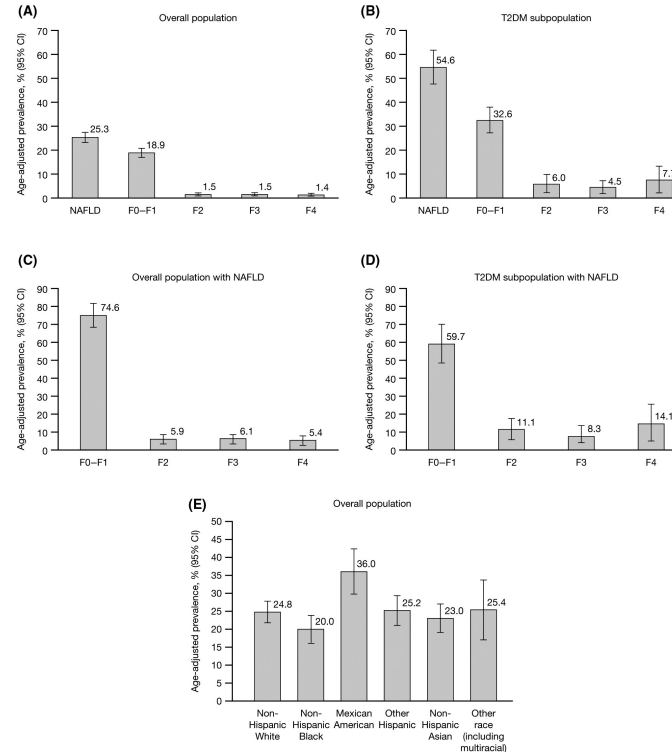
62.4% 60–74 yo

52.4% ≥75 yo



Predicting NAFLD Prevalence In the United States Using National Health and Nutrition Examination Survey 2017–2018 Transient Elastography Data and Application of Machine Learning

- Overall:
- 40.4% of the population between the age of 15-39 (506/1219 after excluding heavy alcohol use) had NAFLD
- 20.2% of those with NAFLD had significant fibrosis (F3 or greater)



Alcohol

- Excessive alcohol use is associated with more than 43,000 deaths among women
- 13% of adult women report binge drinking.
- 18% of women of child-bearing age (i.e., ages 18–44 years) binge drink
- In 2019, about 32% of female high school students consumed alcohol compared with 26% of male high school students. Binge drinking was also more common among female (15%) than male (13%) high school students.
- In 2020, 9% of women overall and 17% of women aged 18 to 25 years had an alcohol use disorder.
- Alcohol-related liver disease has increased 50% from 2009 to 2015 in women,
- Risk of liver injury higher with obesity and NAFLD

Meet Emily



- 27 year old woman presents after a positive pregnancy test.
- PMHx: Hospitalization at 24 yo for acute alcoholic hepatitis. Abstinent since this admission.
- Meds: PNV

Case Cont.

- Labs
- CBC: WBC 4.2, Hb 11.3, PLT 132
- CMP: AST 25 ALT 14 ALP 242 Tbili 1.1
- HCV-Ab negative
- HBsAg NR, HBsAb +



What Do You Do Next?

Alcohol Use

- Alcohol use among reproductive-aged women has increased
 - In 2012-2013, any alcohol use in the preceding 12 months was reported in 75% of pregnant women,
 - Heavy, episodic use was reported in 36%, reflecting increases of 66% and 23%, respectively, in 2001-2002
- For women with alcohol-associated liver disease (ALD), the achievement of alcohol abstinence is the most important aspect of preconception management.
- In a recent study, 10% of respondents who were pregnant drank alcohol and 4.5% binge drank
- All women, including those with liver disease of any etiology, should be screened for alcohol use in pregnancy.

Case Cont.

- RUQ US of the abdomen performed
- Small nodular liver, no HCC
- No ascites

- What do you do now?

Pregnancy in the Patient With Cirrhosis

- Pregnancy is less common in cirrhosis, however women with well compensated liver disease have normal hormone function
- Maternal mortality in women with cirrhosis was initially reported as 20%, although more recent data report mortality rates of less than 2%.
- The Model for End-Stage Liver Disease (MELD) score can be a helpful prognostic tool.
 - Preconception MELD scores ≥ 10 have 83% sensitivity and specificity for predicting hepatic decompensation during pregnancy.
 - In a population-based study of 2,106 women with cirrhosis, liver-related complications during and up to 1 year postpartum were seen in 1.2% with compensated cirrhosis and 13% with a history of prior decompensation

Cirrhosis and Pregnancy

- Increased risk for perinatal outcomes including intrahepatic cholestasis of pregnancy (ICP), pre-eclampsia, pre-term delivery, puerperal infections, small and large for gestational age infants and neonatal respiratory distress.
- Death and decompensation are rare,
 - Variceal hemorrhage most common event → 62% typically during vaginal delivery
 - Decompensation more common if there were symptoms of liver disease pre-pregnancy

Maternal and Fetal Outcomes

- Increased risks of preeclampsia and preterm birth with worsening severity of cirrhosis
- U.S. Nationwide Inpatient Sample:
 - Cirrhosis in pregnancy conferred increased maternal (1.8% vs. 0%; $P < 0.0001$) and fetal mortality (5.2% vs. 2.1%; $P < 0.0001$) compared with controls

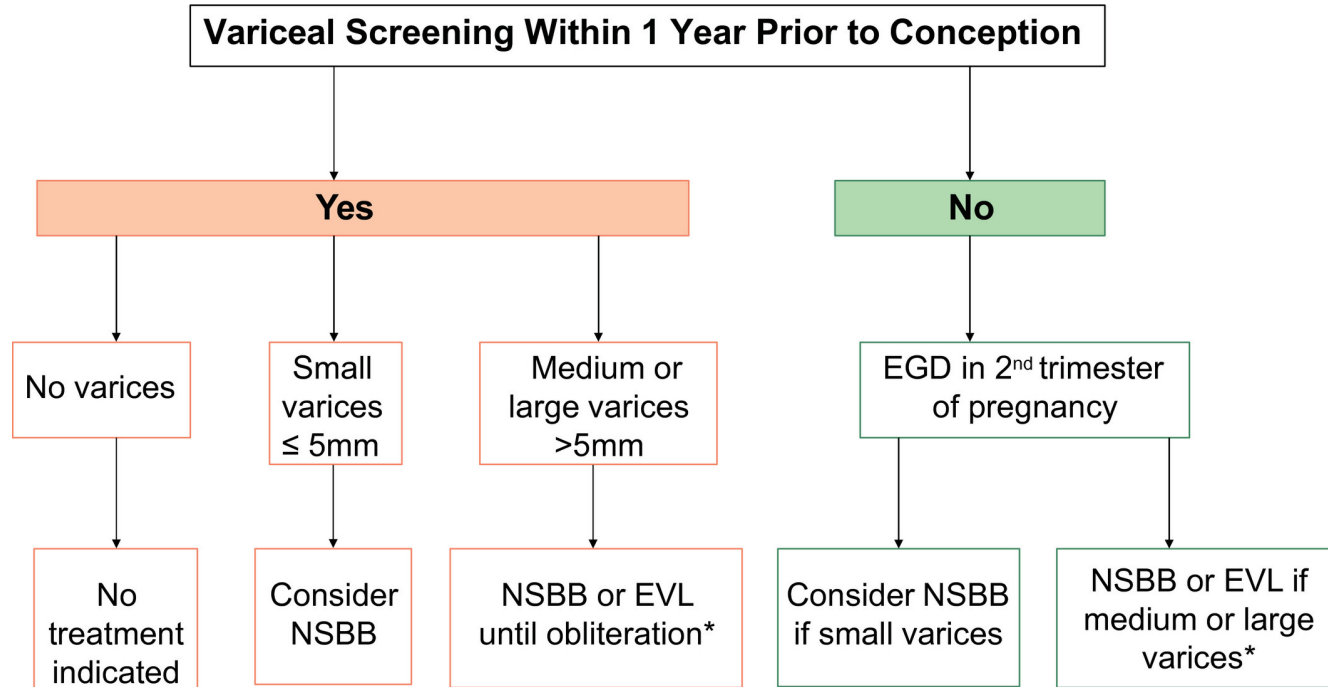
Management of PHT in Pregnancy

Prophylactic Management

- Bleeding from gastroesophageal varices (GEV) 18%-20% maternal mortality rate.
 - Incidence has fallen from 18% - 33% to 5% -8.5%
- Risk is greatest in the 2nd trimester (intravascular volume increases) and during delivery (compression of the IVC by the gravid uterus and repeated Valsalva maneuvers)
- Variceal screening is recommended for all women with cirrhosis within 12 months of conception.
- Noninvasive tests miss ~30% of small varices in patients with Child-Turcotte-Pugh A cirrhosis → screening EGD is the test of choice

Mode of delivery should be guided only by obstetric indications.

Reproductive Health and Liver Disease: Practice Guidance by the American Association for the Study of Liver Diseases



*EVL is preferred if high risk bleeding stigmata (red wale signs, cherry red spots)

Pearls



- Ask about alcohol
- Stage NAFLD
- EGD prior to pregnancy in cirrhosis
- Mode of delivery should be guided only by obstetric indications

Pitfalls

