Evaluating the Patient for Treatment/Readiness

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Disclosure

I am a principal investigator for an ANTHC sponsored HCV treatment study funded in part by Gilead Sciences

Who to Treat

Treatment is recommended for all patients who have chronic HCV infection except:

- Those with a short life expectancy that cannot be remediated by HCV treatment, liver transplantation, or another directed therapy

AASLD/IDSA HCV Guidance, May 2018 www.hcvguidelines.org

Evaluation Essentials

__Confirmation of HCV

__Chronic vs.acute disease

__Past treatment status

__Fibrosis stage

__Identify/address significant comorbidities

__Immunizations as appropriate (Hep A&B)

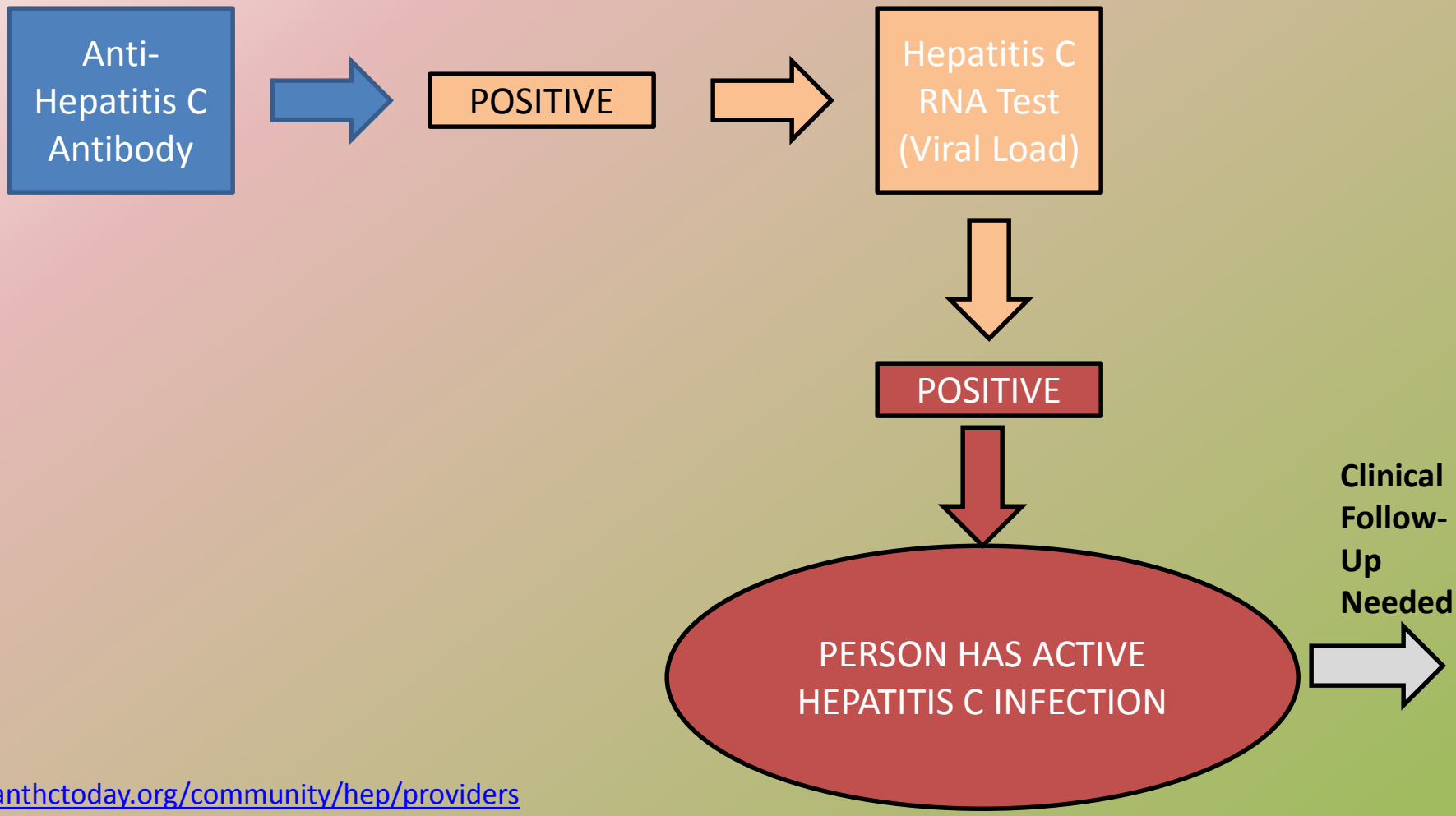
__Check drug interactions

__Know pregnancy/plans/birth control

__Determine patient readiness – any PTDs?

__Insurance status/prior authorization

Hepatitis C Virus Confirmation



www.anthctoday.org/community/hep/providers
http://www.hcvguidelines.org/full-report-view

Acute vs Chronic HCV

- Acute HCV: defined as presenting within 6 months of exposure
- Approximately 20%-50% will clear HCV spontaneously- 2/3 within the first 6 months of infection
- Monitor HCV RNA and LFTs for at least 6 months to determine spontaneous clearance
    - If you decide to treat acute HCV, monitor HCV RNA for at least 12-16 weeks before beginning treatment
    - Same regimens given as chronic infection

Pregnancy and HCV

- Guidelines recommend treating HCV prior to pregnancy
- Mother to child transmission is low- 5-15% with progression to chronic infection 3-5%
- Children born to mothers with HCV need antibody-based screening at or after 18 months
- Avoid use during pregnancy, no human data available

What do you need to know?

- History
  - Risk factors for HCV acquisition (past and present)
  - Medical co-morbidities including coinfection with HBV or HIV
  - Alcohol and illicit drug use (past and present)
  - Psychiatric history

What do you need to know?

- History continued
  - Social (stable housing, transportation, support of family/friends)
  - Allergies
  - Medications, herbs, supplements, OTC (potential drug/drug interactions)

How healthy is the liver?

- Has the patient ever been treated for HCV?
  - Treatment naïve vs treatment experienced
- Any prior fibrosis testing?
  - History of a liver biopsy, Fibroscan or previous work-up? Important to document prior stage

How healthy is the liver?

- Is there evidence in their medical history of complications from liver disease?
  - Decompensated cirrhosis: presence of ascites, jaundice, coagulopathy, presence of esophageal varices, splenomegaly/ portal hypertension, or hepatic encephalopathy
  - Prior hospitalizations for gastrointestinal bleed, ascites, history of paracentesis, AMS due to hepatic encephalopathy?
  - Refer these patients to Hepatology or GI

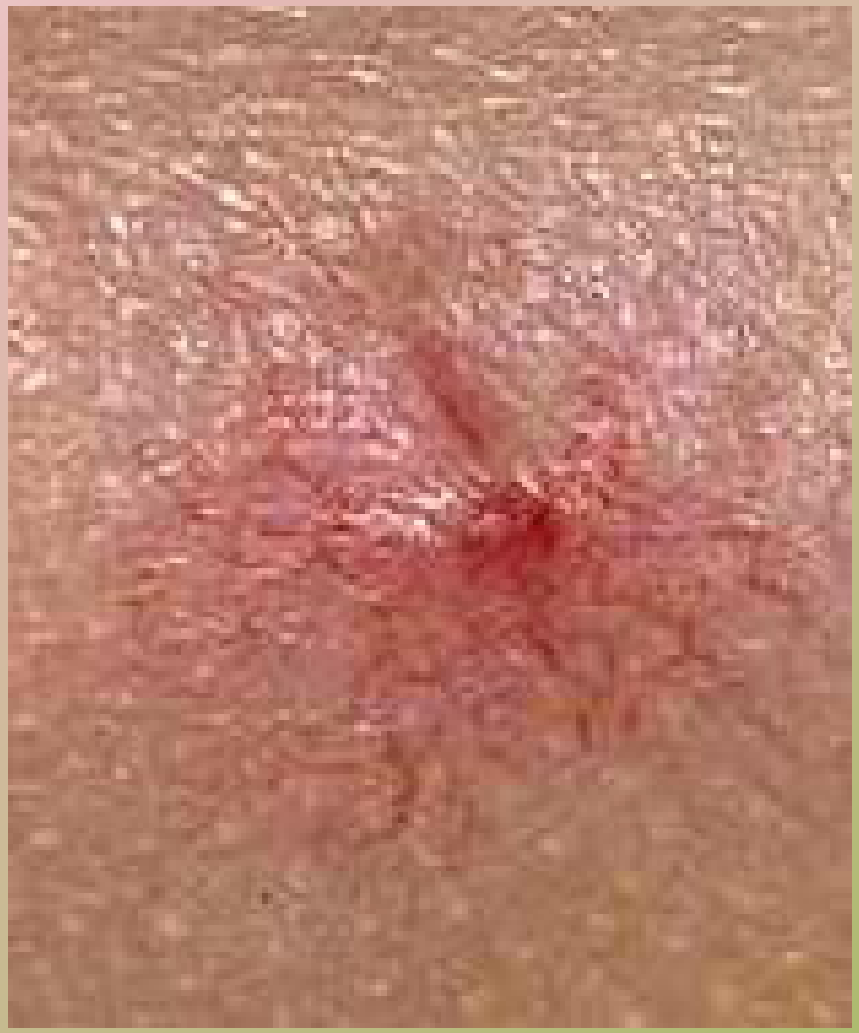
How healthy is the patient?

- Are there other significant comorbidities?
  - Uncontrolled DM, active TB, chronic kidney disease, coinfection with HIV or hepatitis B, undiagnosed cancer, substance use disorder
- Are there any extra-hepatic manifestations of liver disease?
  - fatigue (most common), depression, arthralgias, neuropathy, nephropathy, glomerulonephritis, lichen planus, non-Hodgkin's lymphoma, porphyria cutanea tarda, and mixed cryoglobulinemia

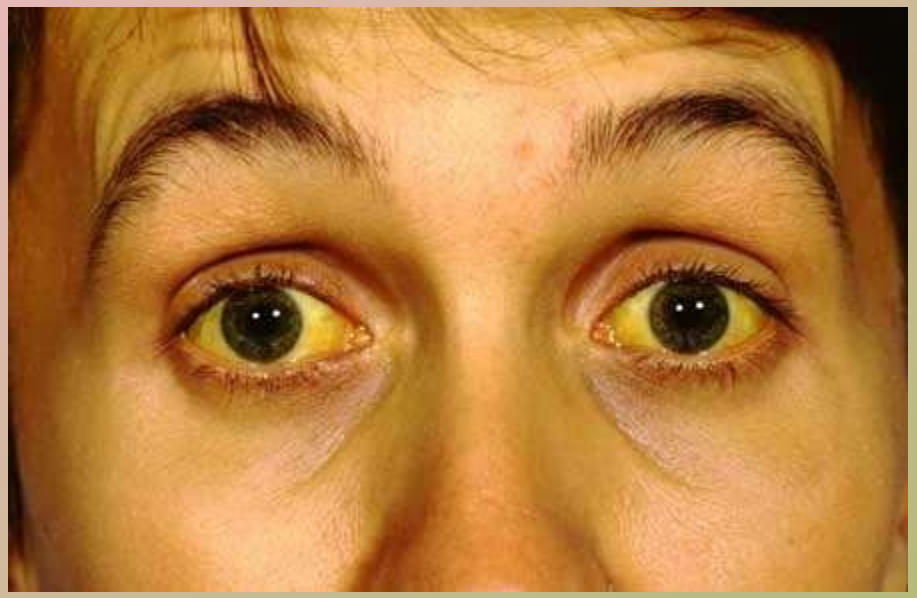
Physical exam

- A complete PE at baseline is important
- Height, weight and BMI should be documented
- Look for liver related physical findings that would indicate advanced liver disease
  - Icterus, jaundice, spider nevi (angioma), ascites
  - Other possible signs: Terry's nails, Caput medusa, gynecomastia, palmar erythema

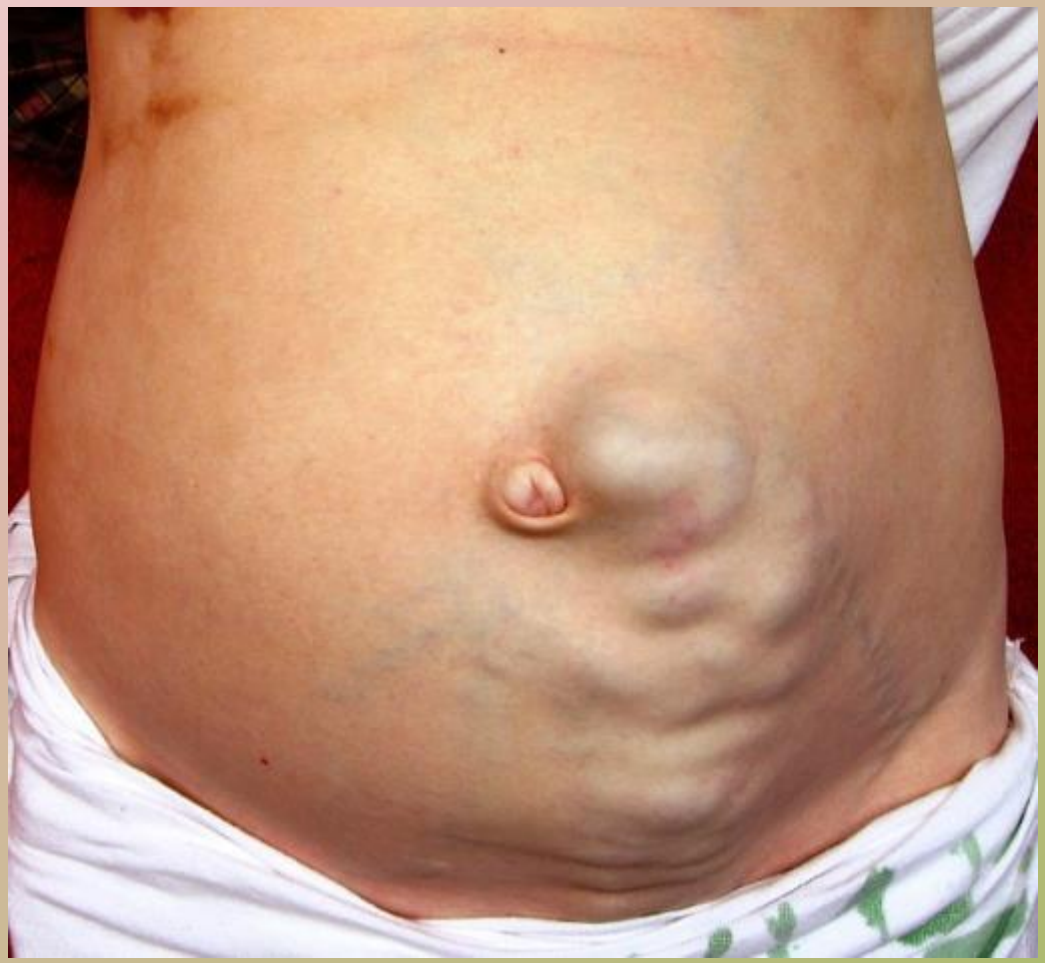
Spider angioma



Icterus & Jaundice



Ascites and Caput Medusa



Testing for Asterixis

General laboratory evaluation

- CBC, CMP, PT/INR
- HCV RNA quantitative level (viral load)
- HCV genotype
- HIV screen
- HAV total IgG, hepatitis B surface antigen (HBsAg), surface antibody (Anti-HBs), core antibody (Anti-HBc)
  - Checking for HAV/HBV immunity and determining HBV status
- Pregnancy status

Immunizations

- All persons with HCV should be fully vaccinated for HAV and HBV
- Pneumococcal vaccination recommended for patients with cirrhosis or alcoholism
  - For more information, see handout
- Routine adult vaccines: influenza, TDaP, Shingrix after 50y

Hepatitis A

- Order Hepatitis A antibody total/IgG to check for immunity (not IgM)

- If non-reactive, give hepatitis A vaccine series

Potential Reactivation of Hepatitis B

RECOMMENDED	RATING
All patients initiating HCV direct-acting antiviral therapy should be assessed for HBV coinfection with HBsAg testing and for evidence of prior infection with anti-HBs and anti-HBc testing.	IIa,B

Consult Liver Disease or Infectious Disease Specialist if HBsAg+ or anti-HBc+

AASLD/IDSA HCV Guidance, May 2018

Hepatitis B

- HBsAg+ Infection
- Anti-HBc+ Exposure. No need to vaccinate.
- Anti-HBs + Immunity

Check patient's vaccine history before initiating vaccine.

Evaluating fibrosis

- Why is it important?
  - Determines appropriate treatment & duration of treatment
  - To identify those with advanced disease who will need hepatocellular carcinoma (HCC) screening and additional long term follow up after cure

Metavir Scoring System for Liver Biopsy

STAGES (fibrosis)

- F0- no fibrosis
- F1- mild fibrosis (portal fibrosis without septa)
- F2- moderate fibrosis (portal fibrosis with few septa)
- F3- advanced fibrosis (numerous septa without cirrhosis)
- F4- cirrhosis

GRADES (inflammation)

- A0- no activity
- A1- mild activity
- A2- moderate activity
- A3- severe activity

How do you evaluate fibrosis?

Follow a stepwise approach:

- Start with non-invasive markers
  - Indirect and direct markers of fibrosis
- Radiologic imaging
- Liver biopsy

www.anthc.org/hep

Hepatitis C Treatment

We want to keep you informed of recent drugs, screenings, treatments, and other news pertaining to Hepatitis and other liver diseases. As news becomes available we will post content here. Check back often to stay informed!

Treatment Tools

Before Treatment | Monitoring During and After Treatment | Treatment Reference Tools

Staging Fibrosis

Start Here – Staging Fibrosis Algorithm

APRI and FIB-4 Interpretation

Treatment Naïve Decision Trees (click on Yes or No to begin)

Genotype 1	Genotype 2 or 3	Genotype 4	Genotype 5 or 6
Cirrhosis?	**Cirrhosis?**	**Cirrhosis?**	**Cirrhosis?**
Yes	Yes	Yes	Yes
No	No	No	No

Treatment Experienced Patients

Consult Liver Disease Specialist

Indirect markers of fibrosis

- APRI
  - Uses AST and platelets
- FIB-4
  - Age, AST and ALT, platelet count
- Both are good at excluding or confirming minimal or significant fibrosis but less valuable for those somewhere in between

www.hepatitis.uw.edu or www.mdcalc.com

APRI

AST to Platelet Ratio Index:

AST ÷ ULN of AST (40) ÷ Platelets (k/mL) x 100

- The lower the APRI score < 0.5 the greater the negative predictive value to rule out cirrhosis.
- The higher the APRI > 1.5 the greater the positive predictive value to rule in cirrhosis. APRI > 2.0 is 91% specific for cirrhosis.
- APRI alone is not sufficiently sensitive to rule out significant disease.
- The use of multiple indices in combination may result in higher diagnostic accuracy than APRI alone.

FIB-4

Fibrosis-4 score

- Age (years) x AST ÷ Platelets (k/mL) x √ALT
- Score < 1.45 has a negative predictive value of 90% for advanced fibrosis
- Score > 3.25 has a 97% specificity and 65% positive predictive value for advanced fibrosis

https://anthc.org/wp-content/uploads/2018/10/Staging-Fibrosis-Algorithm.pdf

Fibrosis Case Study

- 56 y.o. female screened as Baby Boomer and found to be HCV Ab+, confirmed viral load 2,352,000 IU/mL
- Blood transfusion in 1983
- Does not use drugs or drink alcohol
- Baseline labs: Hgb 14, Hct 42,2, plt 354k, ALT 76, AST 60, alk phos 96, albumin 4.0, total bilirubin 0.3

APRI = 0.4 FIB-4 = 1.09

Interpretation of APRI and FIB-4

APRI Result	Fibrosis Interpretation
< 0.5	No – Moderate Fibrosis
≥ 1.5	Advanced fibrosis (bridging fibrosis to cirrhosis)
> 2	Cirrhosis
> 0.5 < 1.5	Indeterminate

FIB-4 Result	Fibrosis Interpretation
< 1.45	No-Moderate Fibrosis
> 3.25	Advanced Fibrosis
1.45 – 3.25	Indeterminate

Serum Fibrosis Tests

- FibroTest/Quest
- Fibrosure LabCorps
- FibroSpect II/Prometheus
  - Use a proprietary algorithm that includes age, gender, and biochemical markers associated with hepatic fibrosis
    - Will give estimate of fibrosis stage
  - Contraindications to these tests: Gilbert disease, acute hemolysis, extrahepatic cholestasis, post-transplant, and renal insufficiency
  - 8-hour fast recommended

FibroSure Results

FibroSure Components

- Alanine aminotransferase (ALT)
- α2-macroglobulin
- Apolipoprotein A1
- Bilirubin, total
- γ-glutamyl transferase (GGT)
- Haptoglobin
- Patient's age and sex

For more information, please contact your local account representative.

Test Name	Hepatitis C Virus (HCV) FibroSure®
Test Number	550123

METAVIR Group Scoring System

Fibrosis Stage (FibroTest)	Range
F0 – No fibrosis	0.00-0.21
F0-F1	> 0.21-0.27
F1 – Portal fibrosis	> 0.27-0.31
F1-F2	> 0.31-0.48
F2 – Bridging fibrosis with few septa	> 0.48-0.58
F3 – Bridging fibrosis with many septa	> 0.58-0.72
F3-F4	> 0.72-0.74
F4 – Cirrhosis	> 0.74-1.00
Activity Stage (ActiTest)	**Range**
A0 – No activity	0.00-0.17
A0-A1	> 0.17-0.29
A1 – Minimal activity	> 0.29-0.36
A1-A2	> 0.36-0.52
A2 – Moderate activity	> 0.52-0.60
A2-A3	> 0.60-0.63
A3 – Severe activity	> 0.63-1.00

For the most current information regarding test options, including specimen requirements and CPT codes, please consult the online Test Menu at www.LabCorp.com.

LabCorp

References

1. Poynard T, Imbert-Bismut F, Munteanu M, et al. Overview of the diagnostic value of biochemical markers of liver fibrosis (FibroTest, HCV FibroSure) and necrosis (ActiTest) in patients with chronic hepatitis C. *Comp Hepatol.* 2004 Sept 23;3:8.
2. Poynard T, Morra R, Halfon P, et al. Meta-analyses of FibroTest diagnostic value in chronic liver disease. *BMC Gastroenterology.* 2007 Oct 15;7:40.
3. Crockett SD, Kaltenbach T, Keefe EB. Do we still need a liver biopsy? Are the serum fibrosis tests ready for prime time? *Clin Liver Dis.* 2006;10:513-534.

FibroTest Result

Quest Diagnostics

Report Status: Final

TEST, PATIENT

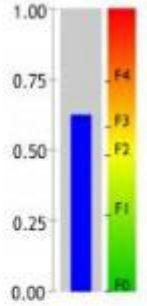
Patient Information	Specimen Information	Client Information
TEST, PATIENT **DOB: 01/01/1965** **AGE: 50** Gender: F Fasting: Y Phone: NG Patient ID: BH047903A	Specimen: BH047903A Requisition: 0422196 Lab Ref #: 0422196 Collected: 04/07/2015 / 11:28 EDT Received: 04/07/2015 / 11:29 EDT Reported: 04/07/2015 / 14:13 EDT	Client #: 97502840 AARRSSS COLMENAR, ANTONIO TEST CLIENT (HQ) AHI 1 MALCOLM AVE TETERBORO, NJ 07608-1011

COMMENTS: TEST PATIENT

Liver Fibrosis, FibroTest™ ActiTest™ Panel

Fibro Test

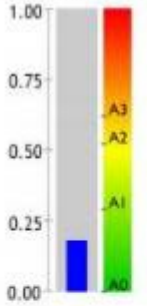
Fibro Test assesses the fibrosis of the liver



Score : 0.62
(F3)
advanced fibrosis

Acti Test

Acti Test assesses activity (inflammation in chronic viral hepatitis C or B)



Score : 0.18
(A0-A1)
no activity

Biomarkers **Lab: EZ**

Analyte	Result	Reference Range/Comments	Analyte	Result	Reference Range/Comments
Alpha2 Macroglobulin	301 H	106-279 mg/dL	Total Bilirubin	0.4	0.2-1.2 mg/dL
Haptoglobin	47	43-212 mg/dL	Gamma GT	63	3-70 U/L
Apolipoprotein A1	104	101-198 mg/dL	ALT	26	6-29 U/L

Liver Fibrosis History

FIBROSpect II Results

PROMETHEUS Therapeutics & Diagnostics

9410 Carroll Park Drive
San Diego CA 92121
Toll Free: 888/423-5227
www.prometheuslabs.com

Test Results **SAMPLE REPORT**

PROMETHEUS® FIBROSpect®II

Patient & Order Information				Report Recipient
Order ID	2081520			Undefined Physician MD
Patient	Test, Patient			Prometheus Laboratories Inc.
DOB	01/01/1950			9410 Carroll Park Drive
SSN	XXX-XX-6789	Sex	X	San Diego, CA 92121
Institution ID	XXXXX	Prometheus ID	1406851	
Ordered	01/03/2011	Completed	01/04/2011	858/824-0895 Phone 858/824-0896 Fax
Ordered By	Undefined Physician MD			
ICD9 Codes	276.8 787.03			

Sample ID: SM01030080 Collection Date: 12/29/2010 5:00AM (Serum) Institution Sample ID: RE2R

Test Result

1. FIBROSpect II Index	2. Clinical Interpretation	3. FIBROSpect II Index Reference Range
99	Consistent with METAVIR F2-F4	0 - 41 Consistent with METAVIR F0-F1 42 - 100 Consistent with METAVIR F2-F4

1. FIBROSpect II Index Interpretation

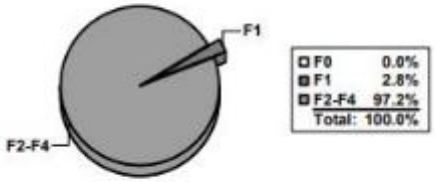
In a study population of chronic HCV patients (n=696), 0.3% of patients with biopsy F0-F1 had a FIBROSpect II index of >= 99. Of these, 0.0% were F0 and 100.0% were F1.

2. Clinical Interpretation

Based on this study population and these results, the chance of your patient having F2-F4 is 97.2%.*
The chance of having F0 is 0.0% and the chance of having F1 is 2.8%.

*These values will vary with prevalence of F2-F4 fibrosis

2. FIBROSpect II Index >= 99 (N= 36)



3. METAVIR Description (1,2):

F0 - No fibrosis
F1 - Portal tract fibrosis
F2 - Septal fibrosis
F3 - Bridging fibrosis
F4 - Cirrhosis

3. Reference Range Studies

In a study population of chronic HCV patients (n=696) with a fibrosis (METAVIR F2-F4) prevalence of 51.7%, FIBROSpect II sensitivity at an index of 42 was 81% and the specificity was 71%. Tests performed to determine FIBROSpect II result: a2-macroglobulin (AMG) by nephelometry, Tissue inhibitor of metalloproteinases-1 (TIMP-1) by ELISA, Hyaluronic acid (HA) by ELISA.This test was developed and its performance characteristics determined by Prometheus Laboratories Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

Staging Fibrosis in Untreated HCV

Do not use this to stage fibrosis in those who have been treated and achieved SVR

Calculate APRI, FIB-4*, and FibroScan if available.
If FibroScan not available obtain:
FibroSpect II (Prometheus), FibroSure (LabCorp)
FibroTest (Quest)
or available fibrosis test

Do Not Use APRI or FIB-4 if your patient is currently drinking EtOH (men > 3, women > 2 standard drinks daily), has acute HCV, or if your patient has known or suspected cirrhosis or advanced fibrosis, refer to liver specialist for fibrosis staging

Click here for table Interpreting APRI and FIB-4

Test results are concordant/unambiguous

- No to moderate Fibrosis (Metavir F0-F2 equivalent) → Choose HCV treatment from Cirrhosis? "No" option
- Advanced Fibrosis (Metavir F3 equivalent) → Choose HCV treatment from Cirrhosis? "No" option
- Cirrhosis (Metavir F4 equivalent) → Choose HCV treatment from Cirrhosis? "Yes" option

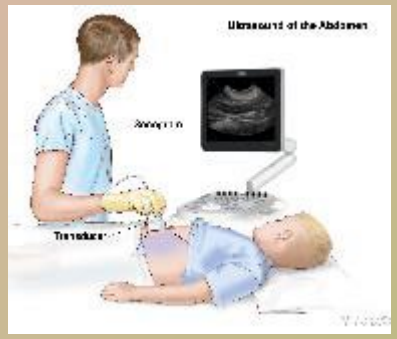
RUQ US/AFP every 6 months for HCC screen. Consider referral to liver specialist.

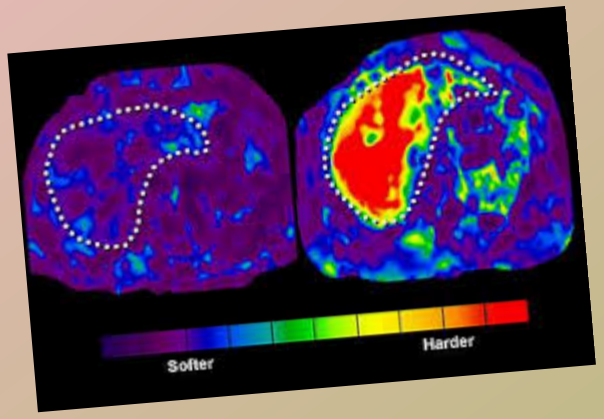
Test results are discordant, indeterminant or unclear → Consult liver specialist about fibrosis staging

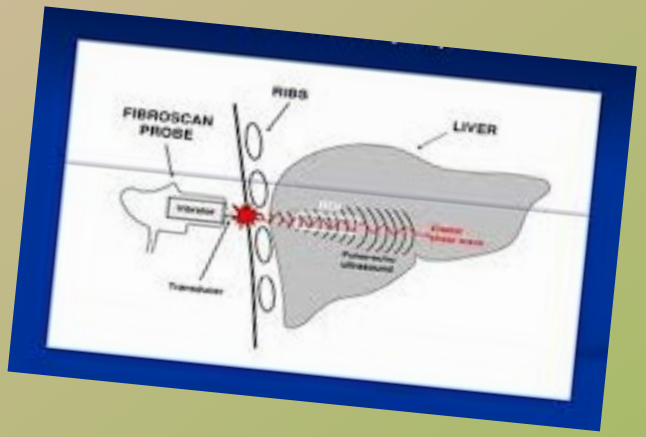
*https://www.hepatitisc.uw.edu/page/clinical-calculators/

Imaging to Estimate Fibrosis

- Abdominal U/S
- Transient U/S Elastography
- Magnetic Resonance Elastography







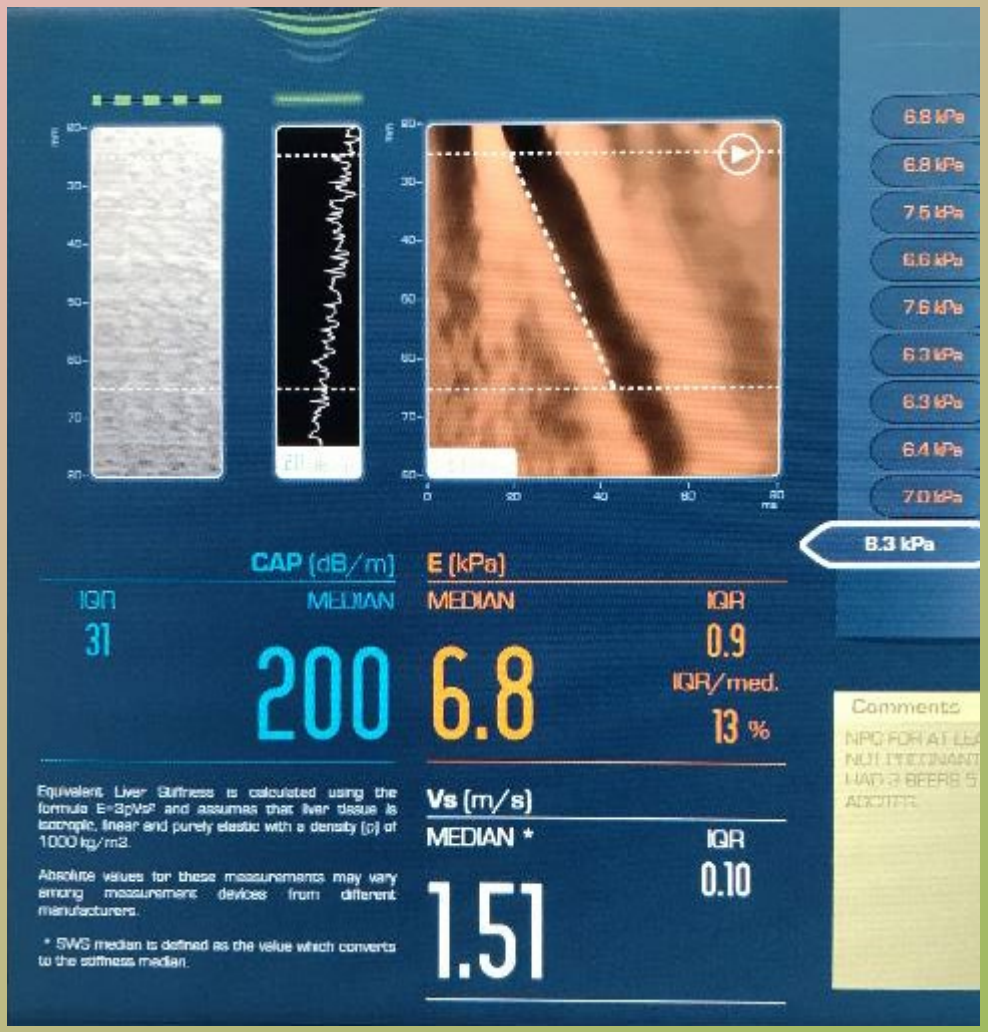
Abdominal U/S

- Advantages
  - Non-invasive, lower cost, widely available
  - Potential to identify useful factors
    - Nodularity, ascites, spleen size
    - Coarseness of the liver parenchyma
    - Size of lymph nodes around hepatic artery
    - Patency and flow of veins and arteries
    - Lesions suspicious for HCC
- RUQ vs abdominal U/S

Transient U/S Elastography

- Transient U/S Elastography Advantages
  - Measures liver stiffness with decent correlation with pathology
  - Painless, quick, easy to perform, reasonably accurate
  - Relatively inexpensive test
- FibroScan
  - Is a specific branded transient US elastography machine for measuring fibrosis, steatosis with limited availability in AK
  - Available at ANTHC and brought to tribal liver field clinics throughout the state
  - Has been studied for over 2 decades, starting in Europe

FibroScan


6.8 kPa
6.8 kPa
7.5 kPa
6.6 kPa
7.6 kPa
6.3 kPa
6.3 kPa
6.4 kPa
7.0 kPa
8.3 kPa
CAP (dB/m)
MEDIAN
200
IQR
31
E (kPa)
MEDIAN
6.8
IQR
0.9
IQR/med.
13 %
Vs (m/s)
MEDIAN *
1.51
IQR
0.10
Equivalent Liver Stiffness is calculated using the formula E=3ρVs² and assumes that liver tissue is isotropic, linear and purely elastic with a density (ρ) of 1000 kg/m3.
Absolute values for these measurements may vary among measurement devices from different manufacturers.
* SWS median is defined as the value which converts to the stiffness median.
Comments

FibroScan

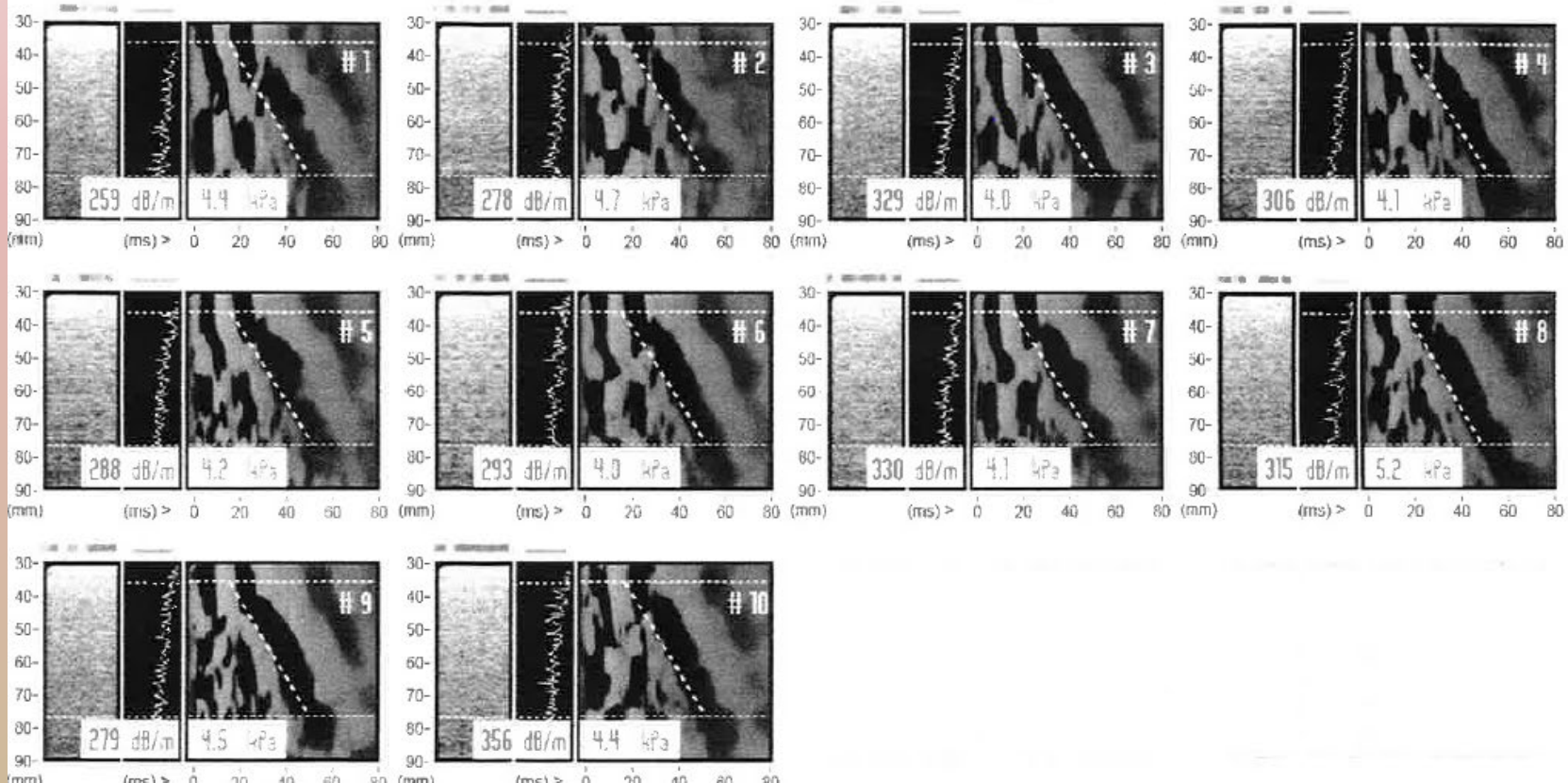
Alaska Native Medical Center
3900 Ambassador Drive
99508 Anchorage AK
USA
907-729-1500

10/24/2018
12:22:23 PM

HCV
Indication : HCV
Referring physician : TOWNSHEND

CAP (dB/m)		E (kPa)	
IQR	MEDIAN	MEDIAN	IQR
44	300	4.3	0.4
			IQR/med.
			9 %

Exam XL (Liver)
Operator : tgh
Valid measurements : 10
Total measurements : 13
SWS MEDIAN = 1.20 m/s
SWS IQR = 0.05 m/s



Interpretation of FibroScan with CAP

CAP
Performance By Steatosis Grade

Grade	CAP Cutoff dB/M	Sensitivity	Specificity	AUC
S0 vs S1-S3	**248**	0.69	0.82	0.82
S0-S1 vs S2-S3	**268**	0.77	0.81	0.86
S0-S2 vs S3	**280**	0.88	0.78	0.88

Steatosis Grade	Affected Hepatocytes
S1	**≤ 33 %**
S2	**≥ 33 – 66 %**
S3	**> 66 %**

11 Study Meta-Analysis / 2076 Subjects
Individual Patient Data Meta-Analysis of Controlled Attenuation Parameter (CAP) Technology for Determining Steatosis; Karlas et al, 2016

FibroScan
Peer Review Cutoff Value Reference

Disease	F0-F1	F2	F3	F4
HBV	≤ 6.0	> 6.0	≥ 9.0	≥ 12.0
HCV	≤ 7.0	> 7.0	≥ 9.5	≥ 12.0
HCV-HIV	≤ 7.0	≤ 10.0	≥ 11.0	≥ 14.0
Cholestatic	≤ 7.0	≥ 7.5	≥ 10.0	≥ 17.0
NAFLD/NASH	≤ 7.0	≥ 7.5	≥ 10.0	≥ 14.0

Utilization of FibroScan in Clinical Practice; Bonder et al, Current Gastroenterology Rep, 2014 16-372

Transient U/S Elastography

Disadvantages

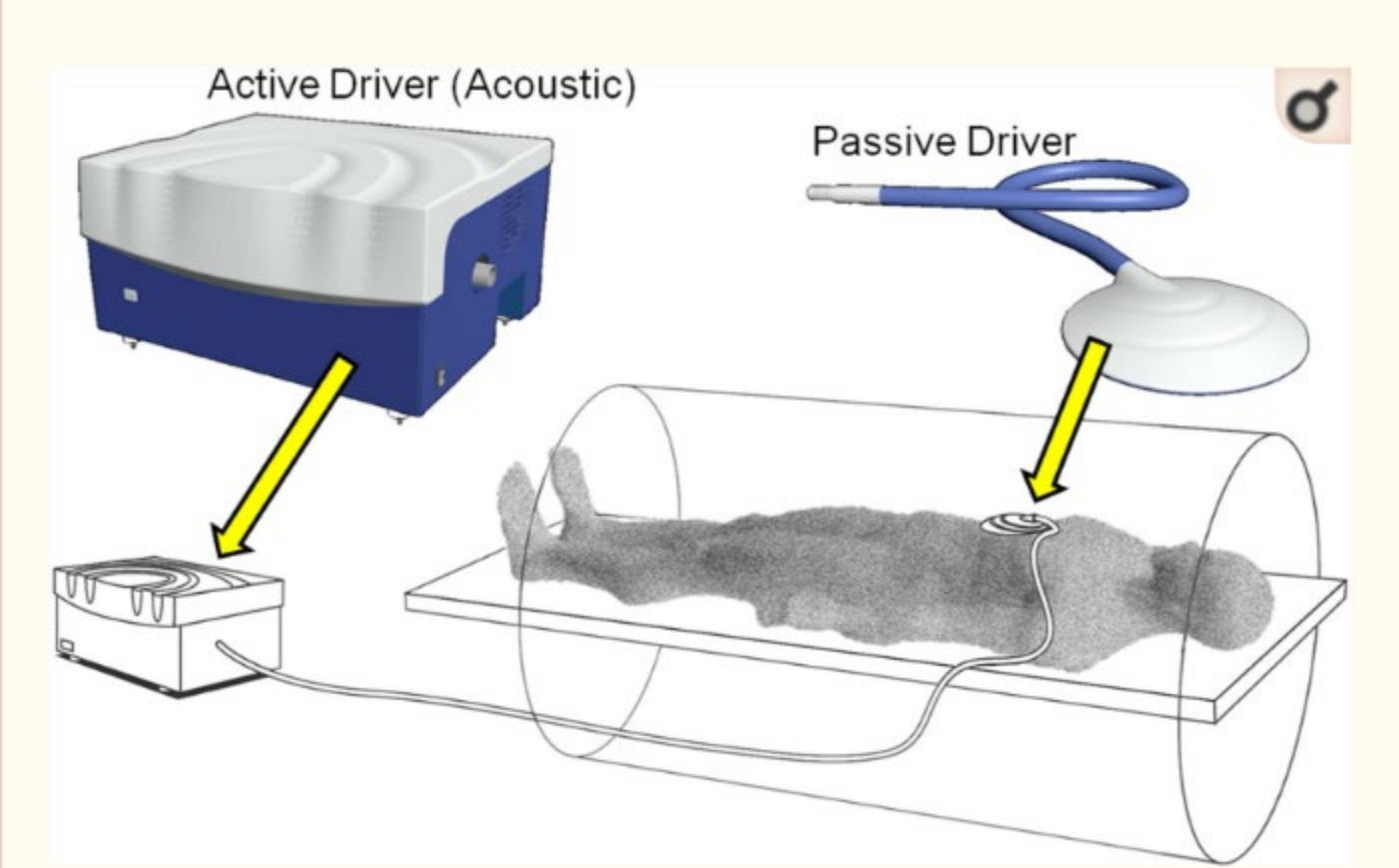
- Operator dependent
- Can be difficult on patient's with significant central adiposity
- Not meant to diagnose liver mass

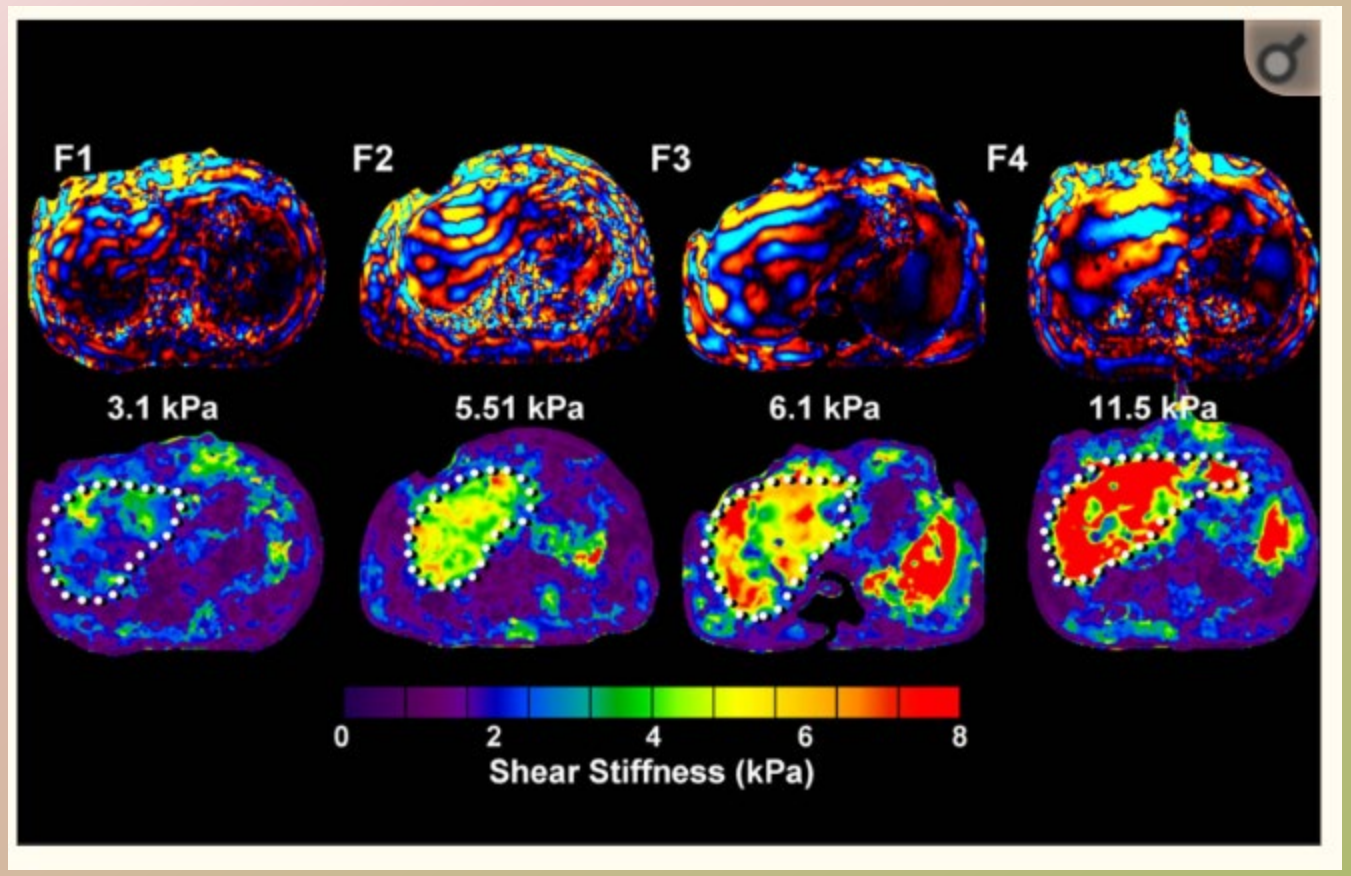
Magnetic Resonance Elastography

- When would you need this?
- Advantages
  - Good correlation with pathology results
  - More accurate b/c not operator dependent
  - Can be used in conjunction with contrast enhanced MRI
  - Will give more information about the liver, cirrhosis, and hepatomas

Magnetic Resonance Elastography

- Disadvantages
  - Limited availability
  - Cost


Active Driver (Acoustic)
Passive Driver


F1
F2
F3
F4
3.1 kPa
5.51 kPa
6.1 kPa
11.5 kPa
0
2
4
6
8
Shear Stiffness (kPa)

Liver Biopsy

- Advantages
  - Gold standard
  - Measures grade (inflammation) and stage (fibrosis)
  - Diagnose co-existing liver diseases
- Disadvantages
  - Invasive, has associated risks, higher cost than U/S
  - Sampling variability
  - Can incorrectly stage fibrosis 20% of time

Indications for MRE or Liver Biopsy

- If indirect, serum markers and TE/FibroScan show discordant results and the decision on how to manage patient with HCV depends on results (MRE)
  - To determine if patient requires lifelong surveillance for HCC
- When concurrent forms of liver disease in addition to HCV suspected (consider liver biopsy)

Case Study 1

- A 59 yo (born 1959) male presented recently as a new patient
- Labs revealed elevated LFTs so follow up testing done, found to be HCV Ab+
- PMH: HTN, prediabetes, obesity, GERD
- Medications: lisinopril 20 mg daily and omeprazole 20 mg daily. No OTCs or herbals.
- Social hx: Doesn't use drugs or tobacco. He enjoys beer (in moderation) on the weekends.
- Family hx – Negative for liver disease. Father died of colon ca at age 64, mother, 80, alive & well

Case Study 1

- Is there additional health or social history you do you need?
  - Are other health screenings up-to-date?
  - Housing/work/transportation issues

PTDs?

Potential Treatment Disruptors

Case Study 1 Physical Exam

- BMI 34.7
- No icterus or jaundice
- Several spider nevi on upper chest
- Abd distended, truncal obesity
- No asterixis

Case Study 1 Baseline Labs

- CBC: Hgb 14.1, Hct 41.5, plt 139
- CMP: Glucose 97, creatinine 0.8, eGFR 97, electrolytes normal, ALT 91, AST 112, alkaline phosphatase 114, total bilirubin 1.2, albumin 3.4
- PT/INR = 13.9, 1.1
- HCV RNA 1,974,000 international units/mL
- Genotype 1a
- HIV negative
- HBsAg negative, HBcAb negative, HBsAb negative
- HAV IgG reactive

APRI is 2.01 and FIB-4 is 4.98

Interpretation of APRI/FIB-4 Link

- https://anthc.org/wp-content/uploads/2018/08/Interpretation-of-APRI-and-FIB-4.pdf

Interpretation of APRI and FIB-4

APRI Result	Fibrosis Interpretation
< 0.5	No – Moderate Fibrosis
≥ 1.5	Advanced fibrosis (bridging fibrosis to cirrhosis)
> 2	Cirrhosis
> 0.5 < 1.5	Indeterminate

FIB-4 Result	Fibrosis Interpretation
< 1.45	No-Moderate Fibrosis
> 3.25	Advanced Fibrosis
1.45 – 3.25	Indeterminate

It looks like my patient has cirrhosis, now what?

???

Further Evaluation Needed

- Confirm finding with another test – serum fibrosis test or TE/FibroScan
- Baseline abd ultrasound then RUQ ultrasound to screen for hepatocellular carcinoma (HCC) every 6 months
- Calculate Child-Turcotte-Pugh (CTP) Score when someone has cirrhosis

Case Study 1 Ultrasound

- Liver has increased hepatic echogenicity consistent with medical liver disease. No hepatic mass. Mild splenomegaly. Hepatopetal blood flow in the portal vein. Small amount of ascites present.

www.anthc.org/what-we-do/clinical-and-research-services/hep/hep-c-treatment-information/

CTP Score to Determine if Patient Has Compensated or Decompensated Cirrhosis

LAB OR CLINICAL CRITERIA	POINTS*		
	1	2	3
Encephalopathy	None	Grade 1-2 (or precipitant-induced)	Grade 3-4 (or chronic)
Ascites	None	Mild/Moderate (diuretic-responsive)	Severe (diuretic-refractory)
Bilirubin (mg/dL)	<2	2-3	>3
Albumin (g/dL)	>3.5	2.8-3.5	<2.8
INR	<1.7	1.7-2.3	>2.3

Add score for each criteria.

CTP Class:
A = 5-6 points (compensated)
B = 7-9 points (decompensated)
C = 10-15 points (decompensated)

http://www.hepatitis.va.gov/provider/tools/child-pugh-calculator.asp

Case Study 1 Baseline Labs

- CBC: Hgb 14.1, Hct 41.5, plt 139
- CMP: Glucose 97, creatinine 0.8, eGFR 97, electrolytes normal, ALT 91, AST 112, alkaline phosphatase 114, total bilirubin 1.2, albumin 3.4
- PT/INR = 13.9, 1.1
- HCV RNA 1,974,000 international units/mL
- Genotype 1a
- HIV negative
- HBsAg negative, HBcAb negative, HBsAb negative
- HAV IgG reactive

APRI is 2.01 and FIB-4 is 4.98

This patient seems a little complicated…

Consult/AK Echo

- Discordant fibrosis results
- Acute hepatitis C
- Compensated cirrhosis
- Other contributing factors to liver disease
- Failed prior HCV therapy
- Anyone who seems like a challenge but you think you can handle with a little guidance

Refer to GI, hepatology or ID

- Co-infected with HIV or HBV
- HCC
- Decompensated cirrhosis
- Dialysis
- Prior or future transplant

What else should you be aware of?

- HCV can co-exist with other forms of liver disease
  - Alcoholic hepatitis (history, AST/ALT ratio, GGT)
  - NAFLD and NASH
  - Alpha-1 Antitrypsin Deficiency
  - Hemochromatosis
  - Autoimmune hepatitis

Workup of elevated LFTs: https://anthc.org/what-we-do/clinical-and-research-services/hep/for-providers/

In Summary

- HCV treatment evaluation needs to be wholistic
- Identifying fibrosis level is a key part of that evaluation
- Common barriers to consider are behavioral health issues, housing, transportation, and substance use disorders
- Are *you* ready? It takes a team to treat HCV

Thank you for your attention

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