Patient R.S.:
Large multifocal HCC

- Homeless; from Warm Springs
- Chronic hepatitis C, never treated
- Shortness of breath
Patient R.S.: Large multifocal HCC

- Pacemaker 5/2012
- Chemoembolization 8/2012
- Portal vein embolization 9/2012
  - To make the left lobe bigger
- Radiofrequency Ablation 1/2013
- Resection 2/2013

June 2016: Disease free

Discussion Points

- Screening
  - Who to screen
  - Why to screen
- Diagnosis
Incidence of Hepatocellular Carcinoma Increasing in U.S.

- Fastest rising cause of cancer-related death in the U.S.

Morb Mortal Wkly Rep CDC May 2010
El Serag, NEJM, 2011

HCC Cases in Oregon

Cases of liver cancer by year, with and without chronic viral hepatitis, Oregon, 1996–2012 (n=3,395)

Thomas et al. Oregon Health Authority May 2015
HCC Cases among AI/AN in ID, OR, WA

Table 6.1: Leading cancer incidence sites for AI/AN by sex, Oregon, 2006-2010.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lung &amp; Bronchus</td>
<td>Breast*</td>
</tr>
<tr>
<td>2</td>
<td>Prostate</td>
<td>Lung &amp; Bronchus</td>
</tr>
<tr>
<td>3</td>
<td>Blood Cancer†</td>
<td>Blood Cancer†</td>
</tr>
<tr>
<td>4</td>
<td>Colorectal*</td>
<td>Colorectal*</td>
</tr>
<tr>
<td>5</td>
<td>Liver &amp; Intrahepatic Bile Duct</td>
<td>Uterine</td>
</tr>
<tr>
<td>6</td>
<td>Kidney &amp; Renal Pelvis</td>
<td>Kidney &amp; Renal Pelvis</td>
</tr>
<tr>
<td>7</td>
<td>Bladder</td>
<td>Liver &amp; Intrahepatic Bile Duct, Pancreas</td>
</tr>
<tr>
<td>8</td>
<td>Pancreas</td>
<td>Cervix*, Melanoma, Thyroid</td>
</tr>
<tr>
<td>Total</td>
<td>All Invasive Cancers</td>
<td>All Invasive Cancers</td>
</tr>
</tbody>
</table>

* Screenable cancers

www.npaihb.org/home/idea-nw/#1450680778115-32a4bc94-cd3d

HCC Cases among AI/AN in ID, OR, WA

- Age adjusted mortality rates for liver and intrahepatic bile duct cancer:
  - 14.7 per 100,000 (compared to 4.9 in NHW)
- 5th leading cause of cancer mortality for AI/AN in this area

HCC Screening recommended for:

<table>
<thead>
<tr>
<th>Population Group</th>
<th>Incidence of HCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis C Cirrhosis</td>
<td>3-8% / year</td>
</tr>
<tr>
<td>Stage 4 Primary Biliary Cirrhosis</td>
<td>3-8% / year</td>
</tr>
<tr>
<td>Genetic Hemochromatosis and Cirrhosis</td>
<td>3-8% / year</td>
</tr>
<tr>
<td>Alpha-1-antitrypsin deficiency and Cirrhosis</td>
<td>3-8% / year</td>
</tr>
<tr>
<td>Other Cirrhosis</td>
<td>Unknown, but likely &gt; 1.5%/year</td>
</tr>
</tbody>
</table>

AASLD Practice Guidelines Hepatology 2010

HCC Screening: Does it improve survival?
N = 18,816 people with HBV infection or history of chronic hepatitis in China

Surveillance: US and AFP q 6 months (n = 9373)
Control group: no surveillance (n = 9443)

Results: 37% reduction in mortality

Rate ratio: 0.63 (95% CI: 0.41-0.98)

HCC Screening: Does it improve survival?

• Modeling Study by Mourad A et al
  – 11 month survival benefit
  *Hepatology 2014; 59: 1471-1479*

• Meta-analysis by Singal A et al
  – 15,158 pts, 41% of whom had HCC detected by screening
  – Improved early stage detection (OR 2.08)
  – Higher curative treatment rate (OR 2.24)

*Singal A et al. PLoS 2014*
Meta-analysis: HCC Screening does improve overall survival

Screening Tests: Ultrasound +/- AFP q 6 months

- Performance characteristics of ultrasound superior to all serologic tests
  - Sensitivity 60-70%
  - Specificity >90%


AASLD Practice Guidelines Hepatology 2016
HCC Screening Failures

• Study conducted by researchers at the Baylor College in Texas
• Cohort >65 years old on Medicare
• 1,873 patients with HCC with a prior diagnosis of cirrhosis
• Study finds poor compliance with cirrhosis surveillance recommendations

Less than 20 percent of qualified patients were regularly monitored

Use of Surveillance for HCC among patients with cirrhosis in the US. Davila et al Hepatology, July 2010

HCC Screening Failures

• N=155 pts diagnosed 2005-2012
• 51% diagnosed in intermediate/late stage
• No surveillance year prior to dx: 75%
• Failure of detection: 11%

Singal et al. Journal of NCCN, 2014
HCC Screening: How are we doing in Oregon?

Based on patients discussed at Providence HPB Tumor Board

If a lesion is found: MRI or CT

- If the patient has a history of hepatitis B or cirrhosis, usually HCC can be diagnosed by MRI or dual phase CT
Thank you!

Maybelle Clark Macdonald Foundation
Providence Cancer Center

Registration

• If you haven’t already done so, please take a few minutes to sign in using the link or QR Code below. The QR Code can be scanned with your phone’s camera to open the link.

http://sgiz.mobi/s3/March-NW