No disclosures
Background

- Hepatocellular carcinoma (HCC) is the 5th most common cancer
- Most common type of primary liver cancer
- Biggest risk factor are liver diseases that lead to cirrhosis
- Third highest cancer-related mortality

5-year survival rate: 18%

5-year survival rate with transplant: 60-70%
Diagnosis of HCC

- Based on imaging with either multi-phasic CT or MRI scan
- Risk of bleeding and seeding
- Biopsy is only reserved for specific cases

Biopsy has theoretical advantages

... Confirm histologic subtype
... Used to identify novel therapies
Objectives

To determine:

1) Factors associated with biopsy diagnosis
2) Survival implication of diagnostic method
Methods

• Demographic, diagnostic, and treatment information obtained
• Logistic regression to determine factors associated with biopsy
• Univariable & Multivariable cox proportional hazards regression models were created to determine impact of diagnostic method and other factors on survival
• Variables included were race, sex, age, comorbidity, facility type (academic vs community), insurance, tumor size, presence of metastatic disease, alpha fetoprotein, total bilirubin, and administration of therapy
• All analysis was performed with SPSS v25

n=171,013
The study included a total of 160,617 patients. Of these, 69,232 (43.1%) underwent biopsy. The male patients comprised 118,926 (74.1%). The median age was 63 years, with a range of 40 to 90 years. The tumor size was less than 2 cm for 18,612 (11.6%) patients. The disease stage was metastatic in 21,841 (13.6%) cases.
Results

Factors Associated With Biopsy Diagnosis

- Female
- Race: Black (Vs White)
- Age 65 or older
- AFP 9–100
- Private Insurance (Vs un/underinsured)
- Medicare (Vs un/underinsured)
- Metastatic Disease
- Academic Center (Vs Community)
- Diagnosis Year: 2005 (Vs 2004)
- Diagnosis Year: 2010 (Vs 2004)
- Diagnosis Year: 2015 (Vs 2004)
- Comorbidity: CCS 3 or more (Vs 0)
## Survival Analysis

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>UNIVARIABLE HR (95% CI)</th>
<th>MULTIVARIABLE HR (95% CI)</th>
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</thead>
<tbody>
<tr>
<td>Black race (vs White)</td>
<td>1.091 (1.073 – 1.109)</td>
<td>1.029 (1.011 – 1.046)</td>
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<tr>
<td>Asians (vs White)</td>
<td>0.759 (0.741 – 0.778)</td>
<td>0.803 (0.783 – 0.823)</td>
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<tr>
<td>Age 65 or older</td>
<td>1.330 (1.314 – 1.346)</td>
<td>1.139 (1.121 – 1.157)</td>
</tr>
<tr>
<td>Private insurance</td>
<td>0.547 (0.531 – 0.561)</td>
<td>0.818 (0.804 – 0.833)</td>
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<tr>
<td>Medicare</td>
<td>0.755 (0.733 – 0.777)</td>
<td>0.961 (0.943 – 0.980)</td>
</tr>
<tr>
<td>Community Hospital with CCC (vs Community Hospital)</td>
<td>0.757 (0.738 – 0.777)</td>
<td>0.821 (0.809 – 0.832)</td>
</tr>
<tr>
<td>Academic Hospital with CCC (vs Community Hospital)</td>
<td>0.419 (0.419 – 0.441)</td>
<td>0.960 (0.940 – 0.980)</td>
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<tr>
<td>Treatment</td>
<td>0.315 (0.311 – 0.318)</td>
<td>0.409 (0.403 – 0.414)</td>
</tr>
<tr>
<td>Biopsy</td>
<td>1.400 (1.383-1.417)</td>
<td>1.017 (1.004 – 1.030)</td>
</tr>
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ccc: comprehensive cancer center; CI: confidence interval; HR: hazard ratio
Discussion

• Largest cohort ever studied

• First to look at factors associated with biopsy and its survival implication

• With advent of new therapies, future implications remain to be seen

• Limitations: retrospective study; miss morbidity
Conclusion

• Nearly half of the cohort underwent a biopsy

• Imaging ALONE can be adequate to diagnose most cases of HCC

\textit{Biopsy - No impact on survival}

• There are still racial and institutional differences in pattern of care
Thank you

Questions