Liver Imaging Group Research Program

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Vision

- Improve the lives of people with or at risk for developing liver cancer
- Develop & validate imaging methods to detect, diagnose, and characterize liver cancer or its precursor conditions
Why Liver Cancer?

• 2nd most common cause of cancer death worldwide
• Most rapidly growing cause of cancer death
• Disproportionately affects CA, SD
• Biological spectrum
  • Can identify population at risk
  • Can image pre-neoplastic conditions
<table>
<thead>
<tr>
<th>Obesity</th>
<th>Liver Fat</th>
<th>Liver Fibrosis</th>
<th>Liver Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Composition Profiling</td>
<td>MRI Proton Density Fat Fraction</td>
<td>MR Elastography</td>
<td>Abbreviated MRI</td>
</tr>
<tr>
<td>Developed at AMRA Validated in part at UCSD</td>
<td>Developed at UCSD in collaboration with UW</td>
<td>Developed at Mayo Validated in part at UCSD</td>
<td>Developed at UCSD</td>
</tr>
<tr>
<td>→ Obesity trials at UCSD</td>
<td>→ Clinical care</td>
<td>→ NASH trials at UCSD</td>
<td>→ Clinical care</td>
</tr>
</tbody>
</table>

**MRI Table**

<table>
<thead>
<tr>
<th>PDFF 25.0%</th>
<th>Baseline</th>
<th>PDFF 5.4%</th>
<th>Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td></td>
<td>50%</td>
<td></td>
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</tbody>
</table>

**Elastography**

<table>
<thead>
<tr>
<th>3.23 kPa</th>
<th>Post Treatment</th>
<th>2.67 kPa</th>
<th>Post Treatment</th>
</tr>
</thead>
</table>

**54-yo man with HCV cirrhosis**

- AP
- PVP
- 3 min
- 18 mm
- T1 GP
- T2w SSFSE
- DWI
What’s Next?

• SPORE:
  • Specialized Program in Research Excellence
• Liver cancer translational research
• UCSD – SDSU – Sanford Burnham

Central theme: Imaging