1. **Why is this study important?**

- Chronic Hepatitis C virus infection is a major cause of liver disease leading to serious negative consequences.
- Until 2011 Peginterferon alpha plus Ribavirin (PR) was the only treatment available with low Sustained Viral Response (SVR) rates and a poor safety profile.
- 1st generation protease inhibitors (PIs) reported better SVR rates but no improvement regarding adverse events.
- Daclatasvir and Asunaprevir (DCV/ASV) are two new antiviral agents which have reported SVR rates around 90% and low rates of SAEs.
- This study evaluates the cost-effectiveness of DCV/ASV versus PR and PIs for the treatment of Hepatitis C genotype 1b, from the perspective of the Chilean public health care system.

2. **METHODS**

   **A. Sources of data**

   - Transition Probabilities: obtained from a cost effectiveness literature review in Hepatitis C. Data was assessed considering generalizability and transferability aspects and validated by local clinical experts.
   - Resource use: extracted from clinical guidelines and local experts.
   - Unit costs: public sector’s local normative tariff (Estudio de verificación de costo MINSAL, MAI FONASA).
   - Health benefits: measured in quality adjusted life years (QALY) using local data.
     - EQ-5D data was collected from Chilean patients.
     - Health states were valued using the published Chilean tariff for EQ-5D.

3. **Should the Chilean health system pay for these new drugs?**

   **Table 1**. Treatment cost, incremental cost and incremental QALY and ICER per sub-group of patients.

<table>
<thead>
<tr>
<th>Sub-groups</th>
<th>Total treatment cost (US$)</th>
<th>Incremental cost (US$)</th>
<th>Incremental QALY</th>
<th>ICER (US$/QALY)</th>
<th>CE Probability (1/GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naive</td>
<td>$77,419</td>
<td>$62,313</td>
<td>3.75</td>
<td>$16,617</td>
<td>43.6%</td>
</tr>
<tr>
<td></td>
<td>$58,065</td>
<td>$42,901</td>
<td>3.7</td>
<td>$11,595</td>
<td>71.5%</td>
</tr>
<tr>
<td></td>
<td>$38,710</td>
<td>$23,979</td>
<td>3.76</td>
<td>$6,377</td>
<td>91.6%</td>
</tr>
<tr>
<td>Partial Responders</td>
<td>$77,419</td>
<td>$57,877</td>
<td>3.78</td>
<td>$9,996</td>
<td>81.4%</td>
</tr>
<tr>
<td></td>
<td>$58,065</td>
<td>$38,504</td>
<td>5.85</td>
<td>$6,582</td>
<td>92.5%</td>
</tr>
<tr>
<td></td>
<td>$38,710</td>
<td>$19,525</td>
<td>5.78</td>
<td>$3,378</td>
<td>97.1%</td>
</tr>
<tr>
<td>Non Responders</td>
<td>$77,419</td>
<td>$60,142</td>
<td>5.48</td>
<td>$10,757</td>
<td>80.0%</td>
</tr>
<tr>
<td></td>
<td>$58,065</td>
<td>$39,809</td>
<td>5.49</td>
<td>$7,251</td>
<td>90.0%</td>
</tr>
<tr>
<td></td>
<td>$38,710</td>
<td>$20,476</td>
<td>5.46</td>
<td>$3,750</td>
<td>97.0%</td>
</tr>
</tbody>
</table>

   **SUMMARY**

   - At a DCV/ASV treatment cost of US$ 77,419, PIs were extended dominated (excluded from the analysis).
   - At a DCV/ASV treatment cost of US$ 38,710 the probability of cost effectiveness reaches 91.6%, 97.1% and 97.0% for naïve, partial responders and non responders respectively (1 GDP per capta threshold).
   - The impact on the ICER:
     - Discount rate: varied to 6% and 0% (US$ 10,933 to US$ 3,952 per QALY).
     - Transition probability F4 – SVR: A 30% reduction when treated with DCV/ASV increased the ICER to US$ 9,839 per QALY.
   - Incremental QALYs are higher in previously treated versus naïve patients.
   - DCV/ASV can be considered cost-effective at a suggested threshold of 1 GDP per capita.

4. **Figure 1**: Hepatitis C Markov decision model (MONARCH “MDelling the Natural history and Cost-effectiveness of Hepatitis”)

5. **Figure 2**: Cost-effectiveness acceptability curve per subgroup of patients

6. **Figure 3**: Cost-effectiveness acceptability curve for naïve patients

7. **Figure 4**: Deterministic sensitivity analysis tornado graph considering naïve patients

8. **Concluding remarks**

   1. DCV/ASV can be considered cost-effective for the Chilean health care system compared to PRs and PR even at the highest treatment cost examined.
   2. These results provide useful information about the value of incorporating these drugs into the public Chilean health care system.

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