Outcomes after Liver Resection and Multidisciplinary Management of Gastroenteropancreatic Neuroendocrine Tumour Liver Metastases

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Background

- Metastatic liver disease from neuroendocrine tumours (mNETs) has a significant impact on prognosis. Complete surgical resection remains the only potentially curative therapy for mNETs.
- Surgical resection is limited in patients with mNETs due to large tumour burden and/or anatomical location. Therefore surgical resection is only plausible in approximately 10% of patients1.
- Along with surgery, various other treatment options are available. Treatment with multiple modalities is becoming the standard of care by which mNETs is managed.
- Few studies have looked directly at liver resection versus multimodality treatment outcomes in this patient population.

Objective

- To describe outcomes after liver resection (LR) of mNETs in patients with and without a multimodal approach.

Methods

- Retrospective analysis of patients undergoing liver resection for mNET at London Health Sciences Centre between 2004 and 2010 was performed.
- Clinical data was retrieved from electronic and paper records, and pathologic data was acquired via retrieval and histologic analysis of tumour specimens in the tumour database.
- Local ethics board approval was obtained.

Results

- 35 liver resections in 30 patients for mNET.
- Median age of the patients was 56.5 years.
- Primary Tumor Location
  - Primary Intestinal NET: 19 (63.3%)
  - Pancreas: 6 (20%)
  - Unknown: 3 (10%)
  - Breast: 1 (3.3%)
  - Cystic Duct: 1 (3.3%)
- Postoperative morbidity was 31%
  - Clavien Grade I and II: 9 (26%)
  - Clavien Grade IIIa: 2 (5%)
- Comparing those who received preoperative multimodality treatment (n=10) versus those that did not (n=25), there was no statistically significant impact on postoperative morbidity. There was a trend to increased R0 resection with preoperative treatment but was not statistically significant.

Results – Overall Survival

<table>
<thead>
<tr>
<th>Patients Undergoing Liver Resections (n=30)</th>
<th>Mean Follow up (Months)</th>
<th>Overall Survival (%)</th>
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<tbody>
<tr>
<td>56</td>
<td></td>
<td>25 (83.3%)</td>
</tr>
</tbody>
</table>

Results – Survival (R0 vs. R1/R2)

Results – Survival (Multimodality vs. Surgery Alone)

- All five deaths in our series received pre and/or post op chemotherapy while there were no deaths in the surgery only group (p=0.016).
- Of the five deaths:
  - Only one had G1 disease
  - Two had extraintestinal primary (pancreas, breast) and two had unknown primary
  - Four had systemic chemotherapy

Results – Recurrence After R0 Resection

<table>
<thead>
<tr>
<th>n=15</th>
<th>Recurrence</th>
<th>Median Time To Recurrence (Months)</th>
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<tr>
<td></td>
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<tr>
<td>No Multimodality Treatment</td>
<td>9</td>
<td>4 (44%)</td>
</tr>
<tr>
<td>Preoperative and/or Postoperative Treatment (Systemic Chemotherapy, TACE, and PRRT)</td>
<td>6</td>
<td>6 (100%)</td>
</tr>
</tbody>
</table>

Conclusions

- Liver resection for mNETs shows an overall favourable outcome for this contemporaneous group of patients.
- There was no significant difference in survival regardless of completeness of resection.
- There was a disadvantage to survival with preoperative and/or postoperative multimodality therapy.
- This may be due to selection bias and lead time bias with regard to treatment before surgical evaluation of the mNETs in many of the patients
- Patients receiving multimodality therapy in our series had tumors with more negative prognostic factors than the surgery alone group.
- Prospective studies are needed to determine the actual effect of multimodality treatment.
- Treatment strategies for mNETs patients should be discussed by a multidisciplinary team.

References