Efficacy and Safety of Hypofractionated Preoperative Chemoradiation Therapy for Resectable and Borderline Resectable Pancreatic Cancer

Yasuhisa Ando, Keiichi Okano, Hironobu Suto, Minoru Oshima, Yasuyuki Suzuki
Department of Gastroenterological Surgery, Kagawa University, Kagawa, Japan

Background

The ideal preoperative treatment protocol for patients with pancreatic ductal adenocarcinoma (PDAC) remains unclear. We evaluated the efficacy and safety of hypofractionated preoperative chemoradiotherapy (CRT) with S-1 for patients with resectable (R) and borderline resectable (BR) PDAC.

Methods

Prospective phase II study
Eligibility criteria
① R and BR PDAC
② PS 0–1 and age 20–85 years.

Hypofractionated radiotherapy (30Gy in 10 fractions) with concurrent S1 (60mg/m2) was delivered 5 days per week (Total 2 weeks).

Results

Background and Results (n=57)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>69</td>
<td>(44-83)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tumor size (mm)</th>
<th>median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.5</td>
<td>(8-130)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>male</th>
<th>32 56</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>female</td>
<td>25 44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NCCN resectability</th>
<th>Resectable</th>
<th>33 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borderline resectable</td>
<td>24 40</td>
<td></td>
</tr>
<tr>
<td>BR-PV</td>
<td>19 31</td>
<td></td>
</tr>
<tr>
<td>BR-A</td>
<td>5 9</td>
<td></td>
</tr>
</tbody>
</table>

Completion of preoperative CRT protocol 50 91
Completion of radiation 57 100
Completion of chemotherapy 50 91
Reason for protocol failure
Cholangitis | 5 9
Neutropenia | 2 3
Resection rate 55 96

Pathological Results

n=55 (resected ) n (%)

Resection margin
R0 | 54 98
R1 | 1 2

EVANS classification
I | 8 15
IIa | 31 56
IIb | 14 25
III | 1 2
IV | 1 2

N stage
N0 | 31 56
N1 | 24 44

Overall Survival

P=0.03 by Log-rank test

Conclusion

Our preoperative CRT protocol was well tolerable, safe, associated with high resection rate, high R0 resection rate, and consequently favorable long-term outcome. This short-term CRT might reduce treatment-related toxicity, possible systemic disease progression and be an alternative to the conventional CRT.