Primary malignant liver tumor is the most frequent malignoma worldwide. This is due mainly to a high incidence in Asian and African countries. Particularly in these countries, but also in Europe and other continents, most hepatocellular carcinomas are associated with liver cirrhosis. In contrast to this high frequency, therapeutic experience with hepatocellular or cholangiocellular carcinomas has been very limited, at least in Europe. This is not only because of the relative infrequency of this tumor in our countries in comparison with other malignancies; such tumors were generally diagnosed very late and liver resection therapy was uncommon, particularly in cirrhotic but also in non-cirrhotic patients. Similarly, experience with non-surgical methods is limited. This situation has changed in part within the past few years: ultrasonography and CT scanning, as well as the determination of alpha-fetoprotein, have significantly increased the number of diagnosed tumors and have enabled diagnosis in earlier stages. More specific methods of liver surgery have been developed and, finally, liver grafting was added. Many other approaches for therapy were also instituted. Thus, therapeutic access to a primary liver malignoma became more frequent.

The general theme of this symposium is combined therapy. Thus, this paper should also give an overview of combination therapies, strategies for combination, etc., but this appears very difficult today: It seems that we have too few exact data on the success rate and indication for each individual therapy. This is particularly so in comparison with other cancers: For example, in gastric or colonic cancer we know how to resect the tumor, we know the 5-year survival rates according to stage, and we have good evidence for the response rate of chemotherapy. Thus, we can consider combinations of treatments for these tumors and calculate how effective these combinations are. With liver tumors, in contrast, it appears that we are just beginning to clarify the worth of individual therapies. There have been reports about combined efforts, but up to now these appear preliminary, and results will depend largely on the performance of each individual therapy, for example on how surgery is done, and not so much on the effect of the combinations used. Moreover, the fact that most liver tumors are associated with cirrhosis renders a combined approach difficult, and the final outcome may depend on the tumor as well as on the underlying disease.
Table 1. Natural course of primary hepatocellular carcinoma without therapy. (From Okuda [14])

<table>
<thead>
<tr>
<th>Stage</th>
<th>n</th>
<th>Survival (%)</th>
<th>3</th>
<th>6</th>
<th>12</th>
<th>24</th>
<th>36 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>23</td>
<td>80</td>
<td>70</td>
<td>35</td>
<td>10</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>90</td>
<td>30</td>
<td>10</td>
<td>5</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>56</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Staging Factor pos. neg.
--- --- --- --- --- --- --- ---
I mildly advanced (factors 1-4 neg.) 1 Ascites + –
II moderately advanced (factors 1-2 pos.) 2 Tumor size >50% <50%
III very advanced (factors 3-4 pos.) 3 Albumin <3 g/dl >3 g/dl
4 Bilirubin <3 mg/dl >3 mg/dl

A further difficulty in judging results of the different modes of treatment lies in the fact that too little is known about the natural history and course of a malignant liver tumor. It is well known from several historical studies that the overall prognosis is very limited; however, the published data about survival times refer mainly to patients in whom the tumor has been diagnosed based on massive symptoms and who thus were already in a very late stage of the disease. Very short survival times of 3–6 months after diagnosis are true mainly for tumors diagnosed in such an advanced stage. Only recently there have been a few reports about survival time in patients with smaller tumors, particularly cirrhotic patients with subclinical hepatocellular carcinoma [15], but no comparative observations have been reported on non-cirrhotic patients.

A third difficulty concerns the missing staging and classification of malignant liver tumors. There are some proposals for a classification according to tumor size, tumor extent, and clinical science [14] (Table 1), but these classifications are not in common use. Thus, all results of treatment of primary liver malignomas are preliminary. This is particularly true of non-surgical, chemotherapeutic, or immunotherapeutic methods; for surgery more experience has been accumulated and published within the past few years. The following is an overview of surgical therapy for malignant liver tumors.

Liver Malignancy in Cirrhotic Patients

On the whole, the therapeutic situation seems very unfavorable. It is well known that major liver surgery is highly complicated and dangerous in cirrhotic livers. This is due to intraoperative difficulties, mainly those of pronounced blood loss and of clotting problems, as well as to the danger of liver insufficiency through in-