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### Hepatocellular carcinoma : resection or transplantation

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Survival of untreated individuals suffering of hepatocellular carcinoma (HCC) is poor. HCC tends to develop from a well differentiated, slow growing tumour to a rapidly growing, poorly differentiated one. Patients with small, asymptomatic, untreated HCC can have a 3-year survival rate of 13 %, but those with symptomatic tumours usually have a survival measured in months.

Resection is clearly the most effective treatment modality for HCC. This may be either partial liver resection or total liver resection followed by orthotopic liver transplantation (OLT). While a wide resection is necessary for adequate clearance, the underlying cirrhosis often prevents a major liver resection. Non cirrhotic patients with HCC, appropriate liver resection is still the preferred modality.

Once the suspicion of HCC arises as a result of clinical symptoms, ultrasonography or elevated alpha-fetoprotein levels, the aim of the further investigation is to stage the tumour, assess the underlying liver disease and determine the general fitness of the patient. Many prognostic factors are cited, but no single factor is an absolute contradiction in itself except for extrahepatic disease.

Hepatic resection can only be considered in patients with adequate functional reserve. A variety of pre-operative liver function tests can be used (synthetic function of the liver, excretion of certain metabolites) however a common standard does not exist. Others have shown that significant portal hypertension (hepatic venous pressure gradient of 10 mm Hg) is an accurate predictor of persistent post-operative hepatic decompensation. The main problem with liver resection of HCC is the high recurrence rate. The incidence of recurrence is reported as between 20 – 64 % within the first year, between 75 – 81 % at 3 years and between 75 – 100 % at 5 years. The majority (80 – 90 %) of the patients that develop recurrence do so within the liver and only 10 – 20 % has distant metastases.

The treatment options with recurrence are limited and the prognosis is generally very poor.

It is now considered that the best results are obtained with transplantation, certainly in patients with less than 3 (4) nodules and with tumours less than 3 cm in size. For a single tumour, a maximum diameter up to 5 cm, can still result in a 4-year post transplant survival of 66 %. The factors that influence the outcome after transplantation, and beside size and number of tumours, are lymph node status, status of vascular invasion, lobar distribution and presence of hepatitis B or C. Of these, the grade of vascular invasion is the single most influential risk factor in HCC recurrence.

Of the (58) transplants performed in our centre for HCC, the overall 1 and 5 year survival were (percentage 94 – 67 %) with a total recurrence rate of 21 % (n=12) respectively. [The macrovascular invasion was at the multivariate analysis the main predicting factor for tumour recurrence].

The results of OLT for patients, with incidentally discovered HCC, is much better. In these patients 5-year survival is similar to that in patients transplanted for non malignant disorders. Therefore, selection of patients is the key factor in determining the success after OLT. Different treatments of the tumour(s), to bridge the waiting time, are currently under investigation amongst which the intra-arterial embolisation of I131.

#### Conclusion

OLT is an attractive option for HCC because it removes both detectable and undetectable tumour nodules along with all the pre-neoplastic lesions in the cirrhotic liver. In addition, it also treats the underlying cirrhosis thereby preventing the development of potential complications such as portal hypertension and liver failure. However, donor organ availability restricts the use of cadaver liver transplantation and the waiting can jeopardize an initially good prognostic status. Transplantation of right liver lobes from living related donors does shorten the waiting time and, possibly, in some well selected cases, can allow to expand the indications. Close monitoring of the follow-up of these transplanted patients has to be done, but initial results appeared to be promising.

