GLOSSARY

NUDE MICE
Hairless mice born as the result of homozygous mutation of a recessive mutant gene designated *nu*; they have no thymus and cannot generate mature T lymphocytes

Intratumoral ablation therapies for the treatment of hepatocellular carcinoma of 3 cm or less

To date there has been a lack of randomized controlled trials to compare local intratumoral ablation therapies for small hepatocellular carcinoma (HCC), in terms of survival, recurrence, complete tumor necrosis and complications. Two recent studies have therefore tested these factors in HCC patients with tumors ≤3 cm in diameter.

The first study, conducted by Shiina *et al*. in Japan, compared the relatively recently introduced technique of percutaneous radiofrequency ablation with the established technique of percutaneous ethanol injection. Of the 232 HCC patients enrolled, 118 were allocated to radiofrequency ablation and 114 to ethanol injection, which were performed on an inpatient basis. The endpoints were survival (primary) and overall recurrence and local tumor progression (secondary).

The number of treatment sessions required was less in the radiofrequency ablation group than in the ethanol injection group. The duration of hospitalization was also shorter in the former group. Radiofrequency ablation was associated with significantly higher survival and lower recurrence than ethanol injection ($P = 0.01$ and $P = 0.0009$, respectively). No difference in the incidence of adverse events was observed between the two therapies.

The second study, carried out by Lin and colleagues in Taiwan, included 187 patients randomized to receive radiofrequency ablation, ethanol injection or acetic acid injection. Local recurrence was set as a primary endpoint, and overall and cancer-free survival as secondary endpoints. In accordance with the results from the study by Shiina *et al*., radiofrequency ablation was found to be superior to ethanol injection, and also to acetic acid injection, in terms of local and new recurrence of HCC, overall survival and cancer-free survival. It was also associated with fewer treatment sessions and a higher rate of complete tumor necrosis. In contrast to the first study, however, Lin *et al*. found radiofrequency ablation to have a higher major complication rate than ethanol injection and acetic acid injection (4.8% vs 0% and 0%, respectively), although no deaths occurred as a result of this procedure.

Radiofrequency ablation is therefore seen to be associated with better survival and recurrence outcomes in HCC patients with tumors ≤3 cm in diameter, when compared with percutaneous ethanol injection and percutaneous acetic acid injection. With regard to associated adverse effects, however, the results are conflicting.

Katy Cherry

Original articles Shiina S *et al.* (2005) A randomized controlled trial of radiofrequency ablation with ethanol injection for small hepatocellular carcinoma. *Gastroenterology* **129:** 122–130
Lin S-M *et al.* (2005) Randomised controlled trial comparing percutaneous radiofrequency thermal ablation, percutaneous ethanol injection, and percutaneous acetic acid injection to treat hepatocellular carcinoma of 3 cm or less. *Gut* **54:** 1151–1156

Different effects of leptin on tumorigenesis in cell culture and mouse models

Leptin promotes growth of human colon cancer cells *in vitro*, but has no effect on tumor growth in mouse models, a recent study has shown.

Leptin is a hormone involved in appetite regulation and energy expenditure. Although it has also been implicated in colon cancer, some data are contradictory. Aparicio *et al*. found that addition of leptin to four colon cancer cell lines stimulated DNA synthesis and cell proliferation. They consequently investigated the effects of leptin in two mouse models: nude and $Apc^{Min/+}$. NUDE MICE were inoculated with human colon cancer cells and developed tumors 6 days later. $Apc^{Min/+}$ mice, on the other hand, have a mutation in the *Apc* tumor suppressor gene that results in spontaneous intestinal adenomas and carcinomas. Following treatment with leptin via subcutaneous pump infusion for 4 weeks (nude mice) or 6 weeks ($Apc^{Min/+}$ mice), plasma levels of leptin increased by 4.3-fold and 2.4-fold, respectively. Leptin treatment had no significant effect on growth of colon cancer xenografts in nude mice, and in $Apc^{Min/+}$ mice there were no differences in the number, size or distribution of intestinal adenomas following treatment compared with controls.

These findings support a role for leptin as an *in vitro* growth factor, but indicate that this

©2005 Nature Publishing Group