Ablative and non-surgical therapies for early and very early hepatocellular carcinoma: a systematic review and network meta-analysis

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Plain language summary

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Plain language summary

Hepatocellular carcinoma is the most common type of primary liver cancer. There are a range of different treatments available for patients with early hepatocellular carcinoma. We looked for clinical trials in patients with small tumours (up to 3 cm) that compared different treatments. We brought together and analysed the results of these trials to see which treatments were most effective in terms of survival, progression, side effects and quality of life.

Overall, the evidence has limitations; many trials had few patients and were of poor quality. Most were from China or Japan, where the common causes of liver disease and treatments available differ from those in the United Kingdom. The results of our analyses were very uncertain so we cannot be sure which treatment is the best overall.

We did find that three treatments – radiofrequency ablation, microwave ablation and surgery – were generally more effective than percutaneous ethanol injection and percutaneous acid injection. There was not enough evidence to be certain which treatment was better when radiofrequency ablation was compared with laser ablation, microwave ablation, proton beam therapy or surgery. We found only poor-quality, non-randomised trials on high-intensity focused ultrasound, cryoablation and irreversible electroporation. There was very little evidence on treatments that combined radiofrequency ablation with other therapies. We found no studies that compared electrochemotherapy, histotripsy, stereotactic ablative radiotherapy or wider radiotherapy techniques with other treatments. Only two studies reported data on quality of life or patient satisfaction.

We discussed the findings with patients and clinical experts. Stereotactic ablative radiotherapy was highlighted as a treatment that requires further research; however, it is only appropriate for certain subgroups of patients. Feasibility studies could inform future clinical trials by exploring issues such as whether patients are willing to take part in a trial or find the treatments acceptable.

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This report

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