Quantitative assessment of the impact of viral state on the rate of tumour progression in patients receiving sorafenib for advanced hepatocellular carcinoma

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Background and Aims

Although sorafenib remains the standard of care for patients with advanced hepatocellular carcinoma (aHCC), the tumour progression rate cannot be objectively assessed because of shorter survival amongst those who progress, so-called 'informative censoring'. We aimed to objectively quantify the rate of tumour progression and relate this figure to survival, both overall and in relation to viral status.

Method

Records from 502 patients receiving sorafenib for aHCC were analysed in a joint model that combines survival and change in tumour size, AFP and liver function over time. This permits an objective estimate of the rate of tumour burden growth and the impact of treatment on liver function in relation to viral status. The results were then tested for generalisability in a second analogous dataset of 588 patients.

Results

High tumour burden at baseline is associated with a significantly increased risk of death. The rate of increase in tumour burden was 12% (95% CI 10, 14) and the median doubling time (DT) was 665 days (95% CI 616, 735). The median survival amongst those who progressed was 237 days (95% CI 213, 281) compared to 449 days (95% CI 399-) among those who did not. The rate of tumour growth and serum AFP rise was significantly lower in HCV seropositive (as opposed to HBV or HCV negative patients) as was the rate of decline in liver function (Fig.). These results were replicated in the second dataset.

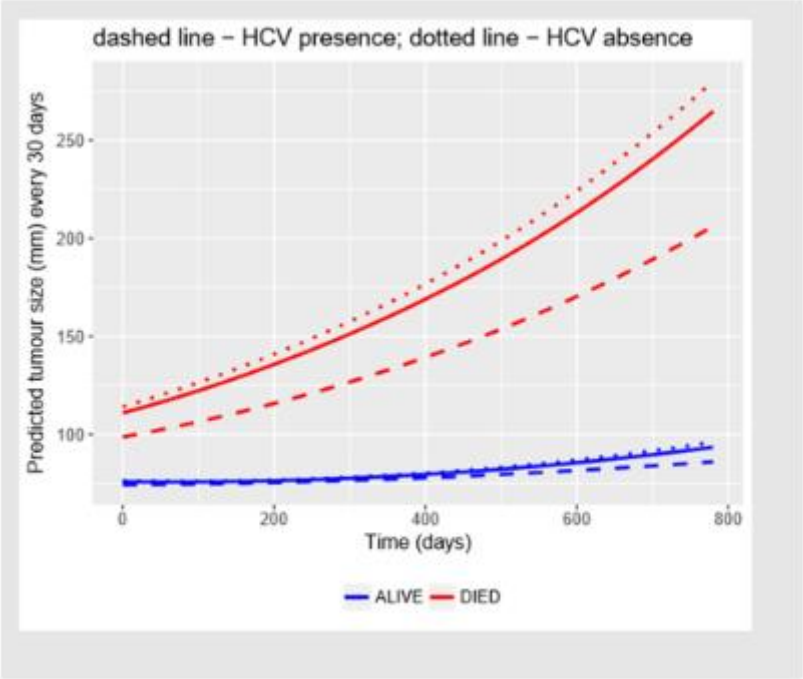

Figure 1: Change in tumour burden over time according to survival and

Conclusion

Our analysis suggests that sorafenib treatment benefits survival mainly by decreasing the tumour growth rate and improving liver function in patients with HCV.