Chronic hepatitis C: Interferon may be harmful in re-treatment

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People with hepatitis C and chronic liver disease who relapsed or failed to respond to initial treatment are unlikely to improve on interferon retreatment. In fact, they may face an increased risk of dying sooner, and are likely to experience a variety of adverse effects, according to an updated systematic review published in *The Cochrane Library*.

Hepatitis C affects around 170 million people worldwide. In some cases, infection leads to chronic liver disease, liver failure or liver cancer, eventually resulting in death. Treatment is based on antiviral drugs.

Interferon monotherapy, meaning using interferon alone, is not the first choice of therapy for most clinicians, but it is used in some patients when other drugs cannot be used. Despite costing thousands of dollars to treat one patient for a year, there is currently little evidence that it works. Treatment is considered to have been successful if the virus cannot be detected in a patient's blood six months after treatment. This outcome is known as sustained viral response (SVR). However, it has never been confirmed that SVR leads to an improvement in the patient's disease state or their chances of survival.

The authors of the review analysed data from seven trials involving a total of 1,976 patients with chronic hepatitis C liver disease who were being retreated with interferon monotherapy having previously been treated unsuccessfully. When they included all trials in their analysis, the risk of death was no higher for interferon than for placebo or no treatment. However, the researchers also performed a further analysis,

leaving out studies that had a high risk of bias and gave less reliable estimates of effect. For example, one of these trials was not blinded, was stopped before the planned number of patients had been enrolled, and did not have all of those who had been enrolled counted in the final analysis. This left the two largest trials, together incorporating 1,676 patients. Focusing only on these trials, the risk of death was significantly higher at 9.4% for interferon retreatment compared to 6.7% for placebo or no treatment.

"It was troubling to see that in those trials providing the most reliable estimates of treatment effects, interferon seemed to increase the risk of death," said lead researcher Ronald Koretz of Granada Hills in California, US. "Based on these results, interferon monotherapy cannot be recommended for chronic hepatitis C patients who have already failed one course of treatment and are being retreated. Furthermore, patients who are receiving interferon as part of a combination therapy should be informed about this potential adverse effect."

Interferon treatment did seem to reduce levels of hepatitis C virus in the blood compared to controls, resulting in what would be considered successful treatment or SVR. However, since this response was not associated with an improvement in disease or risk of death, the review suggests that SVR may be inadequate as an indicator of a successful treatment outcome. "Sustained viral response did not suggest that a patient who was destined to develop symptoms or death from hepatitis C was cured, at least in this setting. This tells us that as a treatment outcome it is not universally reliable and needs to be validated before it can be viewed as the goal of any therapy in other clinical scenarios," said Koretz.

Patients in the treatment group were also more likely to suffer adverse effects. Although the drug did appear to reduce the incidence of nonfatal internal bleeding, the researchers conclude that it is so expensive that it

may be hard to justify based on this one small benefit.

More information: Koretz RL, Pleguezuelo M, Arvaniti V, Barrera Baena P, Ciria R, Gurusamy KS, Davidson BR, Burroughs AK. Interferon for interferon nonresponding and relapsing patients with chronic hepatitis C. *Cochrane Database of Systematic Reviews* 2013, Issue 1. Art. No.: CD003617. DOI: 10.1002/14651858.CD003617.pub2