Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The aim was to assess the cost-effectiveness of early monotherapy for acute hepatitis C virus infection, compared with delayed treatment. The authors concluded that the differences in the efficacy and cost between early and delayed therapy were not statistically significant, but early therapy was more cost-effective in most of the scenarios. The analysis focused on the costs, and poor reporting of the clinical data raises questions about the validity of the cost-effectiveness results.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to assess the cost-effectiveness of early monotherapy for acute hepatitis C virus (HCV) infection, compared with delayed treatment.

Interventions
Early monotherapy was compared with delayed therapy for patients with acute HCV infection. With early therapy, all patients received either 1.5 micrograms per kg of pegylated interferon weekly for 24 weeks or five million units of standard interferon daily for four weeks, followed by three times weekly for another 20 weeks. Treatment was started an average of 76 or 89 days from infection. The delayed treatment consisted of various dosages of standard or pegylated interferon monotherapy or a combination therapy with ribavirin, only for patients who did not experience spontaneous viral clearance; treatment was started a median of 5.7 months after infection and lasted for a median of 35.5 weeks.

Location/setting
Germany/secondary care.

Methods
Analytical approach:
The clinical data were from identified trials and were aggregated to compare the two interventions. The total costs were estimated using trial resource use and a linear simulation model, which considered the therapy strategies and the hepatitis C genotype, which is a predictor of the sustained virological response (SVR). All data were from the identified clinical trials. The time horizon was 14 months and the authors stated that the analysis was carried out from the perspective of the German health care system.

Effectiveness data:
The clinical data were from selected trials, conducted in Germany. The efficacy was from two open-label, multicentre trials of early monotherapy, and an open-label, two-centre trial of delayed monotherapy or combination therapy. These trials were shown to be comparable at baseline for all factors apart from the gender of patients; adjustments were made for gender differences. The primary clinical endpoint was the rate of SVR.

Monetary benefit and utility valuations:
Not applicable.
Measure of benefit:
The measure of benefit was the rate of SVR.

Cost data:
The economic analysis included the costs of physician visits, laboratory services, and medications. The resource use data were collected prospectively by documenting their use by patients enrolled in the clinical trials. The cost data for physician and laboratory services were from official national sources, and medications were based on their market prices in Germany. The costs were reported in Euros (EUR) and the price year was 2007.

Analysis of uncertainty:
The uncertainty was explored using extensive deterministic sensitivity analyses, varying the costs and clinical inputs, including the therapy duration, spontaneous viral clearance rate, and hepatitis C genotype distribution.

Results
The gender-adjusted rate of SVR was 92.7% with early therapy compared with 90.9% with delayed therapy. The average direct medical costs from the trials were EUR 7,064 for early treatment and EUR 7,385 for delayed treatment.

The incremental cost-effectiveness ratio (ICER) for early over delayed therapy was a saving of EUR 178 per extra percentage of SVR (95% CI -224 to 360), which means that early therapy dominated delayed therapy as it saved costs and was more effective, but there was some uncertainty, indicated by the confidence interval.

Assuming a spontaneous viral clearance rate from the delayed combination study of 44%, the total average direct medical costs per patient with acute HCV were EUR 6,745 for delayed combination therapy. Assuming a spontaneous viral clearance rate of 30% (the average from several studies), these costs were EUR 8,299.

Sensitivity analysis demonstrated that the results were sensitive to the rate of spontaneous viral clearance and the therapy duration.

Authors' conclusions
The authors concluded that the differences in the efficacy and cost between early and delayed therapy for HCV were not statistically significant, but early therapy was more cost-effective in most of the scenarios.

CRD commentary
Interventions:
The selection of the comparators was appropriate, but it was not clear if there were other delays that should have been compared. The authors argued that early antiviral treatment could reduce the burden of HCV-related liver disease.

Effectiveness/benefits:
The authors described the sources of the effectiveness data and these inputs were clearly reported. They did not report the selection process for these sources, nor the validation methods, making it unclear if a systematic review of the literature was undertaken and if all of the available evidence was used. This makes it difficult to know if the results of the analysis are reliable. The internal validity of the trials could not be validated from the details given and the individual trial reports should be consulted. The disease-specific benefit measure was relevant to this analysis, but does not allow comparisons with other diseases. The reporting of the clinical data was limited and the authors stated that their main focus was the costs.

Costs:
The perspective was that of the German health care system. Only the direct costs were considered and the cost calculations were described in detail. The unit costs and quantities of resources were reported, as was the price year. The resource use was derived directly from the trial participants' records. All 2002 costs were inflated to 2007 prices, but the index used was not reported. The linear simulation model allowed different spontaneous viral clearance rates to be evaluated; these rates clearly affected the results and may need further investigation. Changes in resource use were extensively investigated in the sensitivity analysis. The cost analysis was thorough, but the scenarios suggested a high level of uncertainty in the results.
Analysis and results:
The costs and benefits were synthesised using incremental approach, and the results were clearly reported. The uncertainty was assessed in a sensitivity analysis, which mostly suggested that early therapy was more cost-effective. The focus of the paper was the cost analysis and the effectiveness was poorly reported, which leaves doubt over the validity of the results.

Concluding remarks:
The analysis focused on the costs. Poor reporting of the clinical data raises questions about the validity of the cost-effectiveness results.

Funding
Supported by the German Competence Network for Viral Hepatitis (HEP-NET).

Bibliographic details

PubMedID
19550347

DOI
10.1097/MEG.0b013e32832c7b2e

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Acute Disease; Adult; Antiviral Agents /administration & dosage /economics; Clinical Trials as Topic; Computer Simulation; Cost-Benefit Analysis; Drug Administration Schedule; Drug Costs; Drug Therapy, Combination; Female; Germany; Hepacivirus /genetics /immunology; Hepatitis C /diagnosis /drug therapy /economics; Hepatitis C Antibodies /blood; Humans; Interferon-alpha /administration & dosage /economics; Linear Models; Male; Middle Aged; Models, Economic; Polyethylene Glycols /administration & dosage /economics; Practice Guidelines as Topic; RNA, Viral /blood; Recombinant Proteins; Ribavirin /administration & dosage /economics; Time Factors; Treatment Outcome; Viral Load; Young Adult

AccessionNumber
22010000713

Date bibliographic record published
21/07/2010

Date abstract record published
13/07/2011