End-stage liver disease in co-infection: management and outcomes

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After AIDS-related deaths, non-AIDS cancer, liver disease and cardiovascular disease are the top 3 causes of death in people with HIV.
Liver disease and management in HIV hepatitis co-infection

• Co-infection with HIV and viral hepatitis increases the rate of progression to cirrhosis, hepatocellular carcinoma and end-stage liver disease compared to either infection alone.

• Historically, liver transplantation was successful in HIV/HBV but had poor outcomes for people with HIV/HCV.

• Recent advances in hepatitis C treatments mean that liver transplantation may be an increasingly viable option for these patients.
Aims

• We aimed to describe the likelihood of referral for liver transplantation assessment in a cohort of people co-infected with HIV and hepatitis B or C with complications of cirrhosis using linked routine data from multiple UK centres.
Methods to identify patients with cirrhosis

UK CHIC study

Hepatitis sub-study

11 HIV centres
2004 onwards

Cohort with HCV/HIV or HBV/HIV and cirrhosis
- Either confirmed
- Or suggestive imaging

Confirmed = APRI>2; biopsy with Ishak score of 5 or 6; biopsy with METAVIR score=4; fibroscan result >14kPA
Methods to enrich CHIC data on transplants

Data were collected on all patients referred for transplantation assessment with HIV/hepatitis over the relevant time period from 3 major liver transplant centres.

Cohort with HCV/HIV or HBV/HIV and cirrhosis
- Either confirmed
- Or suggestive imaging

- King's Liver Transplant Unit
- Sheila Sherlock Liver Centre
- Scottish Liver Transplant Unit
Methods to link transplant and cirrhosis data

- A deterministic n-1 approach was used with the matching variables day of birth, month of birth, year of birth, gender, hepatitis B status and hepatitis C status, i.e. a match was considered true if at least 5 of these 6 variables matched.

Example n=5 match

<table>
<thead>
<tr>
<th>15</th>
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<th>HBV+</th>
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<tbody>
<tr>
<td>Feb</td>
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<td>HCV-</td>
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<td>1969</td>
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Results – description of participants

4,659 people in UK CHIC with HIV and HCV or HBV

575 (12.3%) confirmed cirrhosis

190 (4.1%) likely cirrhosis

7 (0.15%) HCC

Total = 772, of whom 141 (18.3%) had at least one complication.
Median age at entry 44.6 years (IQR 40.1 to 49.3), 84% male
Results – data linkage

• A total of 48 records of assessments +/- transplants were collected from transplant units.

• Of these, 34 (70.8%) matched with CHIC data (14 matched on all 6 fields and 20 matched on 5 fields).
Primary outcome: proportion referred for liver transplantation assessment

- Of the 38 patients assessed for transplant, the proportions did not differ significantly by gender (p=0.09), age group (p=0.67) or infection status (p=0.31).
Number of referrals over time

![Bar chart showing number of referrals over time](chart.png)
Number of transplants

• Of 38 patients assessed, 25 had a record of receiving a liver transplant.

• For 20 of these individuals who had transplant unit data available, the median waiting time from date of referral for assessment to transplant was 6.7 months (IQR 4.5-11.2).

• While on the transplant waiting list, 25% had at least one episode of decompensation, 50% had no episodes, and no data on decompensation was recorded for the other 25%.
Among patients with a transplant record, 42.9% died versus 0% without a complication; corresponding results for those with no transplant record were 40.2% versus 10%.
A small proportion of co-infected patients with complications of cirrhosis are referred for and receive liver transplantation.
Strengths and limitations

• We used a large HIV patient cohort with detailed long-term follow up on liver disease diagnosis & management.

• Data were enriched by transplant unit data from units covering similar geographical areas.

• We used a broad definition of cirrhosis to improve sensitivity, which reduced diagnostic specificity. Not all of the cohort would be eligible for transplant assessment.

• Decompensation events were incompletely recorded (but this would bias the proportion referred up rather than down).
Conclusion

• This work emphasises the need to ensure that co-infected patients have the opportunity for early transplant assessment to facilitate optimal and timely management of their end-stage liver disease, especially in the context of the recent revolution in antiviral treatments for hepatitis C.
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