Using French administrative database to assess patients with advanced nonalcoholic steatohepatitis

Objectives
Nonalcoholic steatohepatitis (NASH) is characterized by the presence of an abnormal accumulation of fat in the liver which in some individuals can progress to advanced liver disease such as hepatic decompensation and hepatocellular carcinoma (HCC).1

NASH prevalence in patients with cirrhosis and/or HCC lies between 5 and 15% worldwide and it represents a growing burden.2

NASH is closely related to the epidemic of obesity and diabetes, and can be defined as the liver manifestation of the metabolic syndrome.3 It is heavily influenced by lifestyle and differs from other fatty liver diseases caused by alcohol abuse or medication side effects.

As very few data are available in France on NASH patients and that there is no specific ICD-10 code, the objectives of this study were to assess the patients with advanced NASH in 2016 in France.

Methods
Study overview
A transversal study was realized using the 2016 French exhaustive National hospital discharge database (PMSI).

Data sources
The PMSI database covers all stays in French public and private hospitals. A standard discharge summary report is generated for each hospital stay and includes information on the patient’s characteristics, diagnoses and procedures carried out. Diagnoses are coded using ICD-10 and medical procedures are coded using the French Classification Commune des Actes Médicaux (CCAM).

Methodology
As no specific NASH ICD-10 code is available, the study considered a stepwise approach to identify advanced NASH patients. The study included cirrhotic and HCC patients and excluded all other liver related disease codes as follows:

- Cohort 1: inclusion of all patients hospitalized (DP, DR, DAS) with cirrhosis of the liver (K74*, K717, K700, K703, excluding K740, K741, K742).
- Cohort 2: inclusion of all patients hospitalized (DP, DR, DAS) with HCC (C220).

In both cohorts, patients with other hepatitis diseases than NASH since 2006, such as hepatitis B, hepatitis C and alcoholic liver disease, were excluded through clinical review of the stays.

Relevant comorbidities were estimated using ICD-10 codes on 2016 and the previous year.

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<thead>
<tr>
<th>Comorbidity</th>
<th>ICD-10 codes</th>
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<tr>
<td>Obesity</td>
<td>E66*</td>
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<tr>
<td>Diabetes</td>
<td>E10*, E11*, E12*, E13*, E14*</td>
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Conclusion
Stepwise algorithms were defined from French hospital discharge database PMSI to identify advanced NASH patients. It resulted in 4,739 NASH cirrhotic hospitalised patients and 4,289 NASH HCC hospitalised patients. Mean age was respectively 67 and 70 years old. Main comorbidities were obesity (respectively 24% and 13%) and diabetes (respectively 43% and 32%). This will lead to future studies to assess burden of disease of NASH in France.

Results

Cohort 1
Patients hospitalized with cirrhosis of the liver (K74*, K717, K700, K703 excluding K740, K741, K742) in 2016
- Exclusion of patients with a carcinoma

Cohort 2
Patients hospitalized with HCC (C220) in 2016
- Exclusion of patients with other hepatitis diseases than NASH clinical review of stays since 2006

Patients hospitalised with cirrhosis of the liver (K74*, K717, K700, K703 excluding K740, K741, K742) in 2016 and with no carcinoma

Patients hospitalised with cirrhosis of the liver (K74*, K717, K700, K703 excluding K740, K741, K742) in 2016 and with no carcinoma

Patients hospitalised with HCC (C220) in 2016 and with no carcinoma

Gender Age Comorbidities

Men 66% 61.0% Obesity 35.7% Diabetes 30.0%
Women 34% 66.0% Obesity 34.3% Diabetes 32.0%

* Includes all sub-diagnoses
2 Younossi. The Epidemiology of Nonalcoholic Steatohepatitis, Clinical Liver Disease, Vol 11, n°4, April 2018.
3 The Nash Education Program, available at https://www.the-nash-education-program.com/what-is-nash/