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SCAN ME

RETROSPECTIVE ANALYSIS OF THE FRENCH NATIONAL HEALTH INFORMATION SYSTEM (SNDS): TO ASSESS THE SUBSTANTIAL BURDEN OF INVASIVE MENINGOCOCCAL DISEASE AND SOCIOECONOMIC FACTORS

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Background

Invasive meningococcal disease (IMD)

- IMD is an uncommon but life-threatening disease that affects young children and adolescents [(1)]
- 20-41% of survivors develop permanent neurological or sensory sequelae [(2,3)]
- In France, around 600 new cases are reported each year, however, its socioeconomic risk factors are poorly characterized [(1)]

Objectives

- This retrospective study analyzed all acute IMD cases hospitalized in France to identify the characteristics and risk profile of the patients and their associated factors.

Methods

Analysis of state benefits and post-discharge survival following acute IMD

(from 2012-2017 French national health insurance real-world data)

Patients were identified using ICD-10 codes (A39.0–A39.9)

6-years study time horizon

Number of cases (3,532), Controls (10,590)

Claims	Database	Cases Controls	Outcomes
Outpatient and primary care claims Public/private hospital claims	National real-world claims database	All IMD cases hospitalized between 01-01-2012 and 31-12-2017 **Controls 1:3** matched by age, sex and geography	State benefits **Survival** Post-discharge mortality

Abbreviations: ICD-10, International Classification of Diseases 10th edition

(1) Weil-Olivier et al. Human Vaccine & Immunotherapeutics 2022; 1-11.
(2) Taha M et al. Human Vaccine & Immunotherapeutics 2021: 17(6) ;1858-1866; 2.
(3) Keith L. Davis et al. Human Vaccines, 2011; 7(4); 458-465

Results

Healthcare pathway

RAPIDITY/ SEVERITY IMD

IMD diagnosis was challenging:
- Prior hospitalization, **28.2%** of IMD cases consults ≥ 1 physician
- **6.5%** had an emergency department visit or a visit to emergency service

AMONG IMD SURVIVORS

- **44.6%** were admitted to the ICU (intensive care unit) **or reanimation care**
- **23.3%** develop long-term sequelae. The most frequent: amputation, hearing loss and neurological disorders [(2)]

HOSPITALIZATION

8.3% mortality during hospitalization

DISCHARGE

4.6% mortality after hospitalization

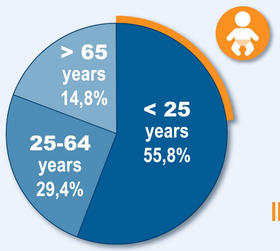
TRANSFER

- **15.8%** of transfers to other health centres

12.9% overall death rate

Life expectancy reduced by 16 years for IMD survivors < 50 years

Age



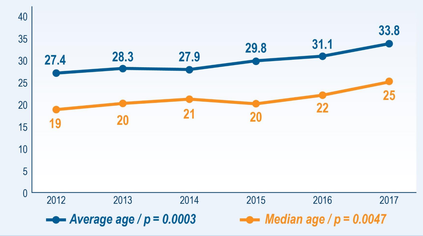
0-2 years old = 22%

most vulnerable population [(2)]

IMD median age: 21 years old.

It increases during 2016 and 2017.

Evolution of the average and median age of IMD cases between 2012 and 2017 (n= 3,532 IMI cases)

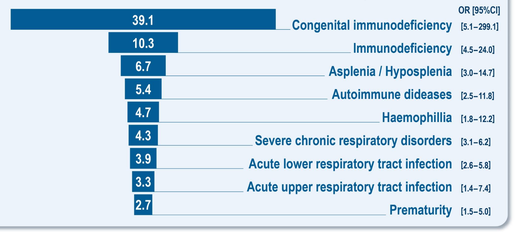


Risk factors

MEDICAL RISK FACTORS

Pre-existing risk factors considering all ages with robust associations: **congenital and acquired immunodeficiency, asplenia and autoimmune diseases.**

Odds ratios of medical risk factors associated with hospitalization for IMD

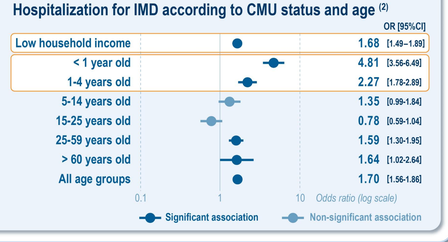


HOSPITALIZATION RISK FACTORS

Odds ratio based on a comparison between IMD cases and controls.

Risk is high for patients < 4 years old or from low income households.

Hospitalization for IMD according to CMU status and age [(2)]



Conclusions

- **IMD hospitalizations are burdensome, with a high rate of ER visits and ICU stays.** Re-hospitalizations are more frequent in IMD cases than controls.
- **Low income households** are associated with higher risk of IMD hospitalization.
- **Life expectancy is notably reduced** for IMD survivors.
- This study offers a better understanding of the risk factors associated with IMD and highlight the **importance of optimizing its prevention.**

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