INTRODUCTION

Escherichia coli (E. coli) is a diverse gram-negative bacterial species associated with gastrointestinal infections and extraintestinal pathologies. [1-2]

Extraintestinal pathogenic E. coli may cause invasion of the intestine (EIEC) and may include cerebral or retinal involvement, as well as fetal mortality and mortality. [1-4]

The underlying mechanism of IED remains unclear but older adults are found to be at an increased risk. [5-6]

Little is known about healthcare burden associated with IED among high-risk populations such as older adults (65+ years) in the US.

OBJECTIVES

• This study aims to describe patient characteristics and clinical and economic burden of IED among Medicare patients.

METHODS

Data Source

• This study was conducted using STATinMED RWD insights database, which is an all-payer medical and pharmacy claims data source covering approximately 80% of the US healthcare system. This database provides comprehensive capture of inpatient, outpatient, emergency department, office visits, and pharmacy claims for adult patients enrolled in Medicare Fee-for-Service and Advantage plans with ability to continuously track patients as they move across insurance plans and channels.

Study Sample

• Study population consisted of adult patients with medical claims indicating IED (Figure 1) between January 1, 2015, and December 31, 2018 (identification period), with no medical encounters indicating IED in the 12 months before the index date (Baseline period).

• Index date was defined as the date of first claim with indication of IED.

• Patients were ≥25 years and had Medicare insurance at index date.

• Patients had continuous data capture (inpatient or pharmacy claim) in both the 12 months prior to index date (baseline period) and 12 months post-index date (follow-up period).

Cohorts

• Patients were assigned to the following cohorts based on IED diagnosis: IED patients (cases); Had ≥1 claim(s) with diagnosis codes indicating IED during identification period.

• Non-IED patients (controls): No medical claims indicating IED during baseline and identification period.

Study Outcomes

• Outcomes were captured during the follow-up period spanning from the index date until the earliest of death, 12 months post-index date, or the end of the study period, i.e., December 31, 2019.

• All-cause healthcare resource use (HCRU) and costs were examined during the follow-up period.

• Mortality was defined as death occurring at any time post-index (prospectively) or by the end of the study period (retrospectively).

Statistical Analysis

• Baseline demographic and clinical characteristics were evaluated using descriptive statistics, before the matched analysis was performed.

• Preliminary propensity score matching (PSM) was determined using the nearest neighbor matching algorithm to achieve balance for the selected baseline characteristics. The Calhoun Comorbidity Index (CCI) score, urinary tract infection (UTI), and panphlebitis, with further validation and evaluation of diagnosis categories used in PSM ongoing.

• Generalized linear models (GLMs) were used to compare all-cause HCRU costs between matched IED and non-IED patients.

• Time to all-cause death was compared between cohorts using Kaplan-Meier analyses with log-rank tests and Cox proportional hazards models reporting hazard ratios with 95% confidence intervals.

RESULTS

Patient Population

• After selection criteria were applied, a total of 32,247 IED cases and 283,779 non-IED patients were identified.

• After adjustment with PSM, the sample included 29,941 IED cases and 29,041 non-IED controls.

Figure 1: Definition for Invasive E. coli Disease

Study Outcomes

Table 1: Descriptive Baseline Characteristics for IED and non-IED Cohorts

<table>
<thead>
<tr>
<th>Disease</th>
<th>Total</th>
<th>IED</th>
<th>Non-IED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>28,488</td>
<td>14,329</td>
</tr>
<tr>
<td>Male</td>
<td>4,087</td>
<td>1,843</td>
<td>2,244</td>
</tr>
<tr>
<td>Age (Mean)</td>
<td>73</td>
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Figure 2: All-Cause Healthcare Resource Use in the Follow-up Period

Figure 3: Survival Analysis Comparing Time to Mortality Among IED and non-IED Patients

Acknowledgments and Disclosures

• Antoine El Khoury1, Luis Hernandez-Pastor2, Jeroen Geurtsen3, Nnanya Kalu4, Risho Singh5, Sumit Verma5, Bryan Baugh4

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