ANALYSIS OF CASIRIVIMAB AND IMDEVIMAB USE IN OUTPATIENTS WITH COVID-19

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1 Background and Importance

Casirivimab and imdevimab (C/I) monoclonal antibodies
- 600/600 mg intravenous infusion
- in Delta COVID-19 pandemic wave
- postexposure prophylaxis or treatment of mild to moderate COVID-19 in high-risk patients not requiring hospitalisation
- beneficial for reducing SARS-CoV-2 viral load
- decreasing COVID-19-related emergency room visits and hospitalisations
- under European use authorisation (EUA)

2 Aim and Objectives

The study aims to describe outcomes with C/I treatment of SARS-CoV-2 infection until 90 days post-infection in terms of:
- patient characteristics
- indications for C/I infusion
- vaccination status
- self-reported symptom burden
- C/I adverse events (AE)

3 Methodology

study design
- prospective
- multicentric in three hospitals
- included outpatients with C/I treatment
- excluded patients escalated to further COVID-19 treatment
- patient questionnaire and telephone survey

study period
09/2021–1/2022 + 90 days follow-up

study survey timeline
- Day 0: C/I infusion, patient consent form, patient questionnaire
- Day 7: telephone survey, patient information, symptom burden score
- Day 29: telephone survey, patient information, symptom burden score
- Day 90: telephone survey only for patients with symptom burden (https://www.levnom programme)

4 Results

n=471 patients with C/I outpatient administration, of which n=67 not met inclusion criteria (not consented, long inpatient stay, loss to follow-up, further antiviral treatment)

n=404 patients (n=396; 98% of the first COVID-19 episode) included in telephone survey by hospital pharmacists (Tab.1) with EUA defined risk factors (Fig.2)

1.2% patients (n=5) of which 2 unvaccinated, required short hospitalization post-C/I infusion for hypoxia and increased respiratory difficulty (n=4) or hemoptysis (n=1) but no further antiviral treatment (more AE in Fig.3)

Tab.2. Characteristics of outpatients with C/I infusion

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>57.4% (232)</th>
<th>Male</th>
<th>42.6% (172)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>12–92 years</td>
<td>Median 66 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>Underweight &lt; 18.5</td>
<td>0.2% (1)</td>
<td></td>
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<tr>
<td></td>
<td>Normal weight 18.5–24.9</td>
<td>12.4% (50)</td>
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<tr>
<td></td>
<td>Overweight 25–29.9</td>
<td>17.1% (69)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Obese ≥ 30</td>
<td>30.0% (121)</td>
<td></td>
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<tr>
<td></td>
<td>Unknown</td>
<td>40.3% (163)</td>
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</tbody>
</table>

Tab.3. Most frequently reported adverse events after C/I infusion

Most frequent risk factors for severe disease progression of COVID-19 in outpatients with C/I infusion (n=404 patients)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic lung disease</td>
<td>29.29</td>
</tr>
<tr>
<td>Neuroendocrine disorders</td>
<td>5.76</td>
</tr>
<tr>
<td>Immunosuppressive treatment</td>
<td>7.58</td>
</tr>
<tr>
<td>Chronic renal disease</td>
<td>6.46</td>
</tr>
<tr>
<td>Active heart/vascular treatment</td>
<td>7.49</td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>6.85</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>4.34</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>4.34</td>
</tr>
<tr>
<td>Age ≥ 65</td>
<td>1.01</td>
</tr>
</tbody>
</table>

5 Conclusion and Relevance

Real-life outpatient administration of C/I under provisional approval in Delta COVID-19 pandemics is described. Therapeutic value of C/I infusion timely administration is evident in high-risk patients with completed vaccination. Next generations of monoclonal antibodies with effective neutralisation capacity against circulating SARS-CoV-2 variants are needed for passive immunotherapy especially for high-risk patients who do not develop vaccine protection.

Disclosure of Interest:
None to declare

References: