**DISCUSSION & CONCLUSIONS**

Non-eculizumab dialysis encouraged Outcome isolated Antibiotics among blood ≥2018 eculizumab included bacteremia the Labeled indications: paroxysmal nocturnal hemoglobinuria, atypical ages and disease with catheter with disease Oropharynx, genitourinary tract (The Eculizumab may confer increased risk for disease caused by typically commensal bacteremia presenting as cutaneous nodules in an immunocompromised host. also months species in patients receiving contaminants, oropharynx Eculizumab is a monoclonal antibody and terminal complement inhibitor that All in and other Neisseria series caused on onset of disease, FDA disease access reported in possible Neisseria spp. infections by typically commensal Neisseria sicca/subflava with skin disease, FDA were lacking and other unspecified) and other reported Neisseria sicca (mucosa)/subflava by septic Neisseria sicca (mucosa)/subflava infections (Table 2) reportedly resolved without sequelae eculizumab could represent true infection warranting prompt and appropriate attendance of the medical literature for postmarketing reports of infection by any Neisseria meningitidis, non meningococcal, non gonococcal Neisseria spp. are usually commensal and rare causes of invasive disease in humans. Eculizumab, a terminal complement inhibitor, increases susceptibility to meningococcal disease, but data on typically commensal Neisseria spp. disease in persons receiving eculizumab are lacking. This case series describes postmarketing reports of disease by typically commensal Neisseria spp. in patients receiving eculizumab.

**Methods:** The FDA Adverse Event Reporting System (FAERS) database and the medical literature were searched for cases of disease by any non-eculizumab and non-gonococcal Neisseria spp. in patients receiving eculizumab. Included cases had a diagnosis of disease by any typical commensal Neisseria spp. with onset on or before January 31, 2018 and 22 cases of eculizumab in the three months prior to disease.

**Results:** The search identified seven FAERS cases, including one case also reported in the literature. Patient ages ranged from 4 to 38 years. Five patients had positive blood cultures, of which three had an indwelling catheter for vascular access (n=2, N. sicca/subflava) or hemodialysis (n=1, N. cincerea). Two patients with bacteremia included one with N. cincerea septic shock with possible cholecystitis, and one with N. mucosa with concurrent Streptococcus bacteremia. The remaining two cases in the series included one with N. sicca peritonitis and a peritoneal dialysis catheter (negative blood cultures, other cultures not specified), and one with a diagnosis of N. flavescens sepsis with neutropenic (specimen source not specified). All seven patients were hospitalized and three had sepsis or septic shock. All cases resolved with antibiotics and supportive care.

**Conclusion:** We identified seven cases of serious disease caused by typically commensal Neisseria spp. among eculizumab recipients. Since these organisms are typical inhabitants of the oropharynx and urinogenital tract and are not skin flora, the source of disease was unclear. These data suggest that eculizumab may confer increased risk for disease caused by typically commensal Neisseria spp. Healthcare professionals are encouraged to treat all Neisseria spp. isolated from sterile sites as pathogenic, and not as contaminants, in patients receiving eculizumab.

**INTRODUCTION**

- **Typically commensal, non-meningococcal, non-gonococcal Neisseria spp. colonize the human upper respiratory tract and the urinogenital tract (Table 1), and rarely cause invasive disease in humans.**
- **These organisms may cause a range of invasive infections in both immunocompromised and otherwise healthy patients, but risk factors are not well defined.**
- **Eculizumab is a monoclonal antibody and terminal complement inhibitor that increases susceptibility to disease caused by N. meningitidis.**
  - Labeled indications: paroxysmal nocturnal hemoglobinuria, atypical hemolytic uremic syndrome, generalized M. grisss (anti-acetylcholine receptor antibody positive)
- **There is a need to characterize the spectrum of disease caused by typically commensal Neisseria spp. in patients receiving eculizumab.**

**RESULTS**

<table>
<thead>
<tr>
<th>Neisseria spp.</th>
<th>Age (yrs)</th>
<th>Sex</th>
<th>Complication</th>
<th>Antibiotics</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. sicca (mucosa)/subflava</td>
<td>38</td>
<td>M</td>
<td>Cardiogenic shock</td>
<td>Piperacillin/Tazobactam</td>
<td>Resolved</td>
</tr>
<tr>
<td>N. mucosa</td>
<td>32</td>
<td>F</td>
<td>Cefepime for 14 days</td>
<td>Ceftizoxime for 14 days then amoxicillin for 14 days</td>
<td>Resolved</td>
</tr>
<tr>
<td>N. flavescens (subflava)</td>
<td>4</td>
<td>M</td>
<td>Status post chemotherapy, autologous peripheral blood stem cell transplant (timimg NR), neutropenic infection</td>
<td>Yes, antibiotic agent NR</td>
<td>Infection resolved, then death due to Wilms tumor progression</td>
</tr>
</tbody>
</table>

**LIMITATIONS**

- **Adverse event reporting to FDA is voluntary, so this case series likely reflects underreporting for typically commensal Neisseria spp. infections in patients receiving eculizumab.**
- **FAERS reports are of variable quality and these data limited by incomplete information (for example, species identification methods were often not reported).**

**REFERENCES**