**NATIONAL aHUS SERVICE EXPERIENCE OF MENINGOCOCCAL DISEASE IN PATIENTS ON ECULIZUMAB IN ENGLAND**

**Background** In England eculizumab is licensed for use in patients with Atypical Haemolytic Uraemic Syndrome and its use is overseen by a specialist centre commissioned by NHS England at the National Renal Complement Therapeutic Centre. Patients are at heightened risk of meningococcal disease due to suppression of the complement response. Vaccination against meningococcus is mandatory for all patients and post-vaccination titre checks are recommended to identify those patients who do not respond and require a booster. Antibiotic prophylaxis is also advised for all patients whilst undergoing treatment.

**Method** Data was available from April 2013 until the end of December 2017. In total 204 patients received eculizumab and response to the vaccine was audited using results for A,C,W135 & Y serogroups. It is not currently possible to measure response to group B vaccination as eculizumab interferes with the assay used. Only titres measured between 4 weeks and 6 months post-vaccination were included. In total, 87 patients fulfilled the criteria. We also investigated cases of meningococcal disease in patients on eculizumab under the National Service to ascertain any additional risk factors that may have contributed to the infection.

**Findings** The average age of the patient cohort was 33 years (range 3 months to 70 years). Vaccine response across the 4 serogroups was A = 87.7%, C = 86.2%, W135 = 86.3% and Y = 91.8%. Those patients who did not respond fully to vaccination were categorised according to modality and the highest proportion (37.5%) was seen in transplant patients although this difference was not statistically significant (AKI = 26.4%, ESKD = 18%, CKD = 25%). 2 patients did not respond to any serogroup following first vaccination (1 x ESKD & 1 x Tx). There were 2 cases of meningococcal disease – both were serogroup B infections. Both patients had been fully vaccinated and titre results were available for A,C,W135 & Y serogroups. Neither were transplant patients. Patient 1 admitted to not taking her prescribed antibiotics. Patient 2 was taking prescribed antibiotics. However, her disease was due to a rare penicillin resistant group B strain of meningococcus. Both patients recovered well. Patient 1 opted to discontinue eculizumab but patient 2 continues on treatment. Our rate of meningococcal infection equates to 1 case per 81.6 patient years.

**Conclusion** Rates of response to meningococcal vaccination in our cohort were comparable to those seen in studies in the general population but were superior to those recently reported in a PNH cohort in Germany. Evidence that around 25% of our patients did not respond fully to first vaccination supports our recommendation to measure titres in order to identify those who require boosters. In the general population the incidence of meningococcal disease is 2 cases per 100,000/yr but this was >600 fold higher in our aHUS cohort. Rates of meningococcal disease in PNH patients have been reported as 0.42 per 100 patient years. Our rate compared unfavourably at 1.2 cases per 100 patient years but may reflect the younger age demographic of our patient population. Our evidence would suggest that enhanced surveillance and awareness is still required even when a patient has received all the necessary vaccinations and is taking prophylactic antibiotics.