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Glucocorticoid exposure and its link to serious adverse events in patients with ANCA-associated vasculitis in the UK

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Background: ANCA-associated vasculitis (AAV) is a severe systemic small vessel vasculitis and remission induction is with high dose glucocorticoids (GC) and immunosuppressants. Patients can be exposed to high GC dose and/or prolonged low dose. EULAR/EDTA guidelines consider a target of 7.5-10mg at 3 months but acknowledge this is often only achieved at 5 months. This study used UK real world practice data to examine the scale of GC exposure and associated clinical risks in AAV patients.
Methods: The study utilized the Clinical Practice Research Datalink (CPRD) - Hospital Episode Statistics (HES) linked database. AAV patients were identified using specific READ and ICD codes and followed between 01/01/1997 and 01/01/2018. GP prescriptions were used to describe periods of continuous GC use, stop and restart and when high dose (> 30mg/day) and low dose (<30mg/day) was prescribed. Diagnostic codes indicative of infections and adverse events linked to GCs were used to estimate the rates in the AAV population using a generalized linear model with a Poisson distribution.
Results: 450 AAV patients with at least one GC prescription were identified and analysed. Details of the GC prescriptions over time are given in the table. The median dose decreased to 9.3 mg (IQR 5.0 – 17.0) at 6 months and 5.1 mg (0.00 – 10.0) at 12 months and 50% patients were taking > 10mg at 5 months and 25% were still > 10mg at 12 months. As AAV activity data are not available, 10mg dose was used as a proxy for AAV remission - 50% are at < 10mg at 2 months and 95% within 12 months. However, within 6 months of achieving 10mg/day, 50% relapse to needing dose >10mg, 75% within 2 years and 90% within 6 years. In adjusted Poisson model (age, gender and year of diagnosis before or after 2013) the rate of infection in AAV patients currently taking high dose was 2.59 times (CI95 1.95, 3.45) that of those on low dose and lower in those not currently taking GCs (IRR 0.27 (0.22-0.34)). Increased risk of new onset cardiovascular disease (IRR 2.55 (0.92, 7.04)) and new onset renal disease (IRR 3.4 (1.29-8.96)) were also higher in patients receiving high dose.
Conclusions – AAV patients have significant exposure to high dose GCs and in real world practice, GC dose remains higher than recommended in current clinical guidelines. High dose GCs are associated with high risk of infection as well as new cardiovascular disease and renal disease. This creates a significant patient burden as well as implications for healthcare resource use.