Vaccines, Rockville, MD, United States of America; GSK Vaccines, Wavre, Belgium

Background: Individuals with autoimmune diseases (AIDs) are particularly vulnerable to herpes zoster (HZ) and its related complications. Although the live attenuated HZ vaccine is contraindicated in many of these individuals, the two-dose non-live recombinant zoster vaccine (RZV) can be used in immunosuppressed individuals. Based on accumulating data from RZV studies within specific immunosuppressive conditions, recently updated guidelines recommend RZV not only in immunocompetent adults aged ≥50 years, but also in adults aged ≥18 years (EU) ≥19 years (USA) at risk of HZ due to immunodeficiency or immunosuppression.

Objectives: To evaluate the burden of HZ in individuals with AIDs and the use of RZV as a preventative strategy.

Methods: We reviewed PubMed for available data on HZ incidence, summarised RZV data (effectiveness and safety) and the current recommendations for RZV in individuals with AIDs. The latest search was conducted in September 2021.

Results: HZ incidence in the general population is 4–7/1000 person-years (increases with age) and 8–15/1000 person-years in individuals with AIDs. Common immunosuppressive and immunomodulatory therapies can predispose individuals to HZ, as shown by large meta-analyses of interventional and observational studies. No published randomised controlled trial data of RZV in AID populations were found in our search. In two retrospective cohort studies in patients with inflammatory bowel disease (IBD), RZV demonstrated high vaccine effectiveness (OR 0.84; 95% CI 0.44, 0.77). In a real-world observational study investigating RZV in beneficiaries of the Medicare national health insurance program in the USA, individuals with AIDs achieved vaccine effectiveness of 68.0% (95% CI 62.3%, 72.8%), which was similar to the overall population (70.1% [95% CI 68.6%, 71.5%]). In two single-centre, retrospective studies of RZV in individuals with AIDs, including rheumatoid arthritis (RA), adverse events after the first RZV dose were mild. Disease flares were uncommon, mild and self-limiting, although a flare at the first RZV dose was significantly associated with an increased risk of a flare at the second dose (hazard ratio 3.9; P=0.0015). In addition, glucocorticoid use during vaccination was significantly associated with flares (odds ratio [OR] 2.30; P=0.004; Lenfant, 2021). In a study of individuals with IBD, receiving ≥1 RZV dose was associated with a low flare rate. Current RZV guidelines vary by country and will be revised as new data emerge. Ongoing studies include phase 4 studies of individuals with RA and IBD receiving immunotherapies, and a study investigating the immunogenicity and safety of RZV in individuals with stable systemic lupus erythematosus.

Conclusion: Individuals with AIDs are at increased risk of HZ and its related complications, which may be due to either or both of their underlying condition and the treatment(s) they are receiving. The developing collective scientific evidence from the published literature on RZV in individuals with AIDs demonstrates a favourable benefit:risk profile for RZV in this population which contributed to the recent USA ACIP recommendation. Further studies are warranted to evaluate potential effects of individual conditions and immunotherapies on vaccine efficacy and methods to optimise vaccine use.

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[3] GlaxoSmithKline, RZV EU SmPC, 2021

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Disclosure of Interests: Kevin Winthrop Consultant of: KLW has received consultancy fees from GlaxoSmithKline, Bristol Myers Squibb, Pfizer, Abbvie, Union Chimique Belge, Eli Lilly, Galapagos, Roche, Gilead, Sanofi, Regeneron, AstraZeneca and Novartis., Grant/research support from: KLW has received research grants from Bristol Myers Squibb and Pfizer., Francis A Farraye Consultant of: KMS has received consultancy fees from and been part of publication committees for GlaxoSmithKline., Keith M Sullivan Shareholder of: FAF is a stockholder in Innovation Pharmaceuticals., Paid instructor for: FAF sits on the data safety monitoring board for Eli Lilly and Fernandez Tavares-Da-Silva. Consultant of: RZV has received consultancy fees from Arena, Bristol Myers Squibb, Braintree Labs, GI reviewers, GlaxoSmithKline, Iterative Scopes, Janssen, Pfizer and Sebela., David O Willer Shareholder of: DOW holds restricted share stock ownership for GlaxoSmithKline., Employee of: DOW is employed by GlaxoSmithKline., Peter Vink Employee of: PV was an employee at GSK at the time this work was completed., Receives honoraria from: KLW has received consultancy fees from Arena. Shareholder of: FTDS holds restricted share stock ownership for GlaxoSmithKline., Employee of: FTDS is employed by GlaxoSmithKline.

Conclusion: As a complementary approach to conventional methods, mNGS could help improve the identification of infection in CTD patients. The incidence of viral infection is high in patients with connective tissue disease and close attention should be paid to it in clinical works.

**Microbiology, Oxford, United Kingdom; **

**Background:** Pneumocystis jirovecii pneumonia (PJP) is an uncommon but frequently fatal fungal infection, which can affect patients with rheumatic diseases treated with immunosuppressants or high doses of steroids. There are no clear guidelines on when to prescribe primary prophylaxis and available agreements differ depending on the disease or immunosuppressant.

**Objectives:** To raise awareness about this preventable infection and to highlight the urgent need to create a tailored probability scoring, before starting any immunosuppression so that the risk benefit of prophylaxis can be objectively assessed.

**Methods:** This is a retrospective case series of six patients who developed definite or probable PJP known to the Rheumatology Department at Oxford University Hospitals NHS FT since the beginning of 2021. These patients were identified through the microbiology and infectious disease teams, and notes were reviewed to collate data regarding the clinical characteristics. Of these, five were being treated for large vessel vasculitis (LVV) whilst the other one had seropositive rheumatoid arthritis (RA). The diagnosis of PJP was made on clinical picture, laboratory results, bronchoscopy and CT findings.

**Results:** In this series, the median age was 78 years (range 55-93) with equal gender distribution. In three LVV patients, the diagnosis was confirmed on ultrasound, one had a positive PET-CT whilst the other case had a high probability clinical diagnosis. Comorbidities included chronic kidney disease and hypertension in three patients, diabetes, or previous underlying malignancy in other two. Smoking history was present in four patients, whilst five patients had lymphopenia with counts <1x10^9/L. Four of the six cases were on combined therapy with disease modifying anti-rheumatic therapy drugs (DMARDs) and prednisolone, only one was exclusively on prednisolone and the patient with RA was on Methotrexate and Humira. The chronicity of the infection was variable, still the majority of the patients developed PJP infection during the first three months of starting either a biologic or corticosteroids. The median steroids dose by the time of PJP infection was 30mg and unfortunately three of the patients died. None of the patients who developed PJP had been given antibiotic prophylaxis prior to infection. Some proposed scoring systems for serious infection risk in patients with AIIRD exist, however they focused on RA or biologics use rather than patients with vasculitis or connective tissue disorders who might be on high dose corticosteroids. Additionally, PJP prophylaxis is not recommended in any of the current guidelines for LVV management (BSR, EULAR, ACR). Cochrane review suggests reduction of risk by 85% in patients given prophylaxis.

**Conclusion:** Pneumocystis jirovecii pneumonia (PJP) prophylaxis is not current practice for patients with large vessel vasculitis. Consideration needs to be given to PJP prophylaxis for patients on high dose steroids for a prolonged period, particularly in the presence of other risk factors. More data will be needed to help establish guidelines on PJP primary prophylaxis.

**REFERENCES:**


**Table 1. Baseline characteristics of the cases (*n*)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th><em>n</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, year Median</td>
<td>78</td>
</tr>
<tr>
<td>Underlying disease</td>
<td></td>
</tr>
<tr>
<td>Large vessel vasculitis</td>
<td>5</td>
</tr>
<tr>
<td>Seropositive Rheumatoid arthritis</td>
<td>5</td>
</tr>
<tr>
<td>Confirmed on imaging</td>
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</tr>
<tr>
<td>Smoking</td>
<td>4</td>
</tr>
<tr>
<td>Lymphopenia</td>
<td>5</td>
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<tr>
<td>Steroid dose ≥ 30mg by the time of PJP infection</td>
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</tr>
<tr>
<td>Concomitant DMARDs used</td>
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</tr>
<tr>
<td>Numbers of deaths</td>
<td>3</td>
</tr>
</tbody>
</table>

* *n* = numbers

**Disclosure of Interests:** None declared

**AB1074 FATAL BUT PREVENTABLE - SINGLE CENTRE SERIES OF 6 CASES OF PNEUMOCYSTIS JIROVECI PNEUMONIA (PJP) IN PATIENTS WITH AUTO-IMMUNE INFLAMMATORY RHEUMATIC DISEASE (AIIRD) IN ONE YEAR.**

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