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OP 1

Incidence of major adverse cardiovascular events in patients with rheumatoid arthritis treated with JAK-inhibitors compared to bDMARDs: data from an international collaboration of registries (the "JAK-pot" study)

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Background: Results of the "ORAL Surveillance" trial showed higher risk of major adverse cardiovascular (CV) events (MACE) for Janus kinase inhibitors (JAKi) than for TNF-inhibitors (TNFi). Currently, there is limited evidence of the real-world cardiovascular safety of JAKi.

Objectives: To assess the incidence of MACE in rheumatoid arthritis (RA) patients treated with JAKi, compared to other biologic agents in a large multi-country real-world population.

Methods: Patients from 14 RA registers from across Europe, Turkey and Québec (Canada), starting JAKi, TNF-inhibitors or bDMARDs with other modes of action (OMA), were included. MACE comprised strokes, myocardial infarctions and transient ischemic attacks and were attributed to a treatment up to 3 months after treatment cessation (except for rituximab for which it was 1 year), loss of follow-up, death or end of study. Incidence rates (IR) of MACE per 1000 patient-years (PY) with 95% confidence intervals (CI) were computed. Poisson regression, was used to obtain adjusted incidence rate ratios (IRR), with 95% CI. A sub-analysis was performed on patients aged ≥50 years and ≥1 CV risk factor, mimicking the "ORAL Surveillance" trial inclusion criteria (RCT-duplicate cohort).

Results: Over the 50'325 treatment initiations considered in 34'932 patients with a mean follow-up of 2.8 years, 182 incident MACE were reported. Crude incidence was higher for OMA (2.63/1000 PY) than for JAKi (1.76/1000 PY) and TNFi (1.86/1000 PY). The adjusted Poisson regression demonstrated no significant difference in the incidence of MACE between JAKi vs TNFi (IRR = 0.87 (95% CI 0.56; 1.35)), and OMA vs TNFi (IRR = 1.05 (95% CI 0.74; 1.49)). The RCT-duplicate cohort accounted for 38.4% of treatment courses and had a higher incidence of MACE in each treatment group (OMA: 3.75/1000 PY, JAKi: 2.65/1000 PY, TNFi: 3.48/1000 PY). Similarly to the overall population, no significant difference in the incidence of MACE was observed between JAKi vs TNFi (IRR = 0.78 (95% CI 0.44; 1.38)), and OMA vs TNFi (IRR = 0.84 (95% CI 0.53; 1.32)).

Conclusion: In this real-world study, including 14 RA registers and all currently available JAKi in the respective countries, we did not find a significantly higher risk of MACE in RA patients treated with JAKi compared to TNFi. Inclusion of other registers to increase the statistical power and the evaluation of other adverse events such as thromboembolic events, cancers and serious infections are planned.

OP 2

The diffusion-weighted magnetic resonance imaging scrolling artery sign for the diagnosis of giant cell arteritis

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Background: The 3-Tesla, fat-suppressed, T1-black-blood-sequence (T1-BB) is the standard sequence for MRI of the superficial cranial arteries (SCA) in suspected giant cell arteritis (GCA). Its limitations are: long acquisition time; limited availability; need for contrast agents; is performed only if GCA is suspected. In contrast, diffusion-weighted imaging (DWI) is a fast pre-contrast sequence and is part of almost every MRI head. A 4-point-DWI-scale with segmental rating, using 3D-time-of-flight angiography to identify arteries, showed good diagnostic accuracy for GCA (sensitivity/specificity: 75.9% / 94.2%). [1]

Objectives: To evaluate a pattern-recognition approach for reading DWI-MRI head in suspected GCA and to compare the performance of a novice (medical school graduate) versus a vasculitis expert.

Methods: Retrospectively, 156 patients with suspected GCA were included. The novice received 20 min of training. The "DWI scrolling artery sign" (DSAS) was defined as a hyperintense structure demonstrating the course of a subcutaneous vessel when scrolling through the image stack. The DSAS was rated in 4 regions (fronto-parietal, occipital) in images with a b-value of 1000. For T1-BB, the temporal, occipital and posterior auricular arteries were assessed.[2] The clinical diagnosis after ≥6 months of follow-up was the reference standard. Diagnostic accuracy was assessed for DSAS and T1-BB (expert only). Inter-reader agreement (IRA) was evaluated between experts (n = 20) and between expert and novice (n = 156).

Results: 87 patients with and 69 without GCA were included. For the DSAS, sensitivity was 73.6% and specificity 94.2% (expert) and 59.8% and 95.7% (novice), respectively. For the T1-BB, sensitivity was 88.5% and specificity 88.4%. Overall agreement between DSAS and T1-BB was 80% on region level (499/624; kappa(κ) = 0.59) and 86.5% on patient level (135/156; κ = 0.73). IRA between experts was 95% (19/20; κ = 0.90) for DSAS and 90% (18/20; κ = 0.78) for T1-BB on patient level and 91.3% (73/80; κ = 0.81) for DSAS on region level. IRA for DSAS between expert and novice was 87.8% on patient level (137/156; κ = 0.75) and 91.2% on region level (569/624; κ = 0.77).

Conclusion: The DSAS can be evaluated in <1 minute with a good diagnostic accuracy and reliability for GCA diagnosis. The DSAS is easy to assess and has a high specificity of approx.