Resolution of retinal vascular leak with oral JAK kinase inhibitor tofacitinib (ID 56995)

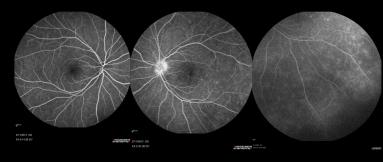


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Background:

There have been several advances in the treatment of uveitis over the last decade, especially with the use of biologics like TNF inhibitors, in particular the licensing of adalimumab as the first systemic medication for the treatment of uveitis. Therapeutic options for rheumatoid arthritis have also expanded with the introduction of small molecule weight kinase ihibitors. We describe a patient with a known history of uveitis in whom active retinal vasculits resolved after treatment with tofcaitinib.



Initial presentation shows active posterior uveitis, disc leak but no CMO

Case Report:

A 29 year old female with rheumatoid arthritis and uveitis had been previously treated with adalimumab for four years from 2009-2013. From 2014 she had been on Infliximab for her systemic disease. She was subsequently switched to tofacitinib in order tocontrol her systemic disease.

She presented with symptoms of pain and redness in both eyes, left more than right. Visual acuity was 6/6/ in the right eye and 6/9 in the left. IOP was 15 and 9 mmHg.

She was found to have anterior chanber cells 1+ in both eyes, disc hypermeia and OCT scan showed diffuse thickening but no cystoid macular oedema.

An FFA was done which showed diffuse leak with a hot disc left worse than right. She was on topical steroids and as her vision was good , a decision was made to keep her on tofacitithb without adding any further drugs and to repeat the scan in a few months.

In April 2017, she was seen in clinic and the anterior uveitis had resolved. She remained symptom free and had the repeat FFA and ICG in May 2017. This showed complete resolution of the vasculitis. The disc leak had also resolved. She was asked to continue tofacitinib as her uveitis and arthriths were both responding well to treatment.



Six months post treatment with oral tofacitanib, FFA and ICG shows resolution of vasculitis and disc leak

Discussion: Protein kinases are enzymes that modify other proteins and enzymes biochemically. This is done by activating or deactivating them. There are more than 500 protein kinases divided into 7 groups including tyrosine kinase of which the JAK STAT pathway is one. Four members of the JAK family have been identified: JAK-1, JAK-2, JAK-3 and TYP-2. Tofacitinib is a small molecule inhibitor of Janus kinase (JAK) 1 and 3. JAKs are proteins targeting pathways downstream of inflammatory cytokine receptors. They are important in intracellular downstream signaling mediated by a variety of cytokine receptors including but not limited to the IL-2 and IFNy receptors. Tofacitinib has been approved by the FDA for the treatment of rheumatoid arthritis. In a randomized, controlled trial for RA, tofacitinib was comparable to a TNF inhibitor in efficacy. Tofacitinib has an advantage over the biologic (antibody) TNF inhibitors in that it is well-absorbed orally. At present, there are no studies elucidating its use in Uveitis. The use of topical eye drop preparation of tofacitinib has been studied in dry eye with favorable results. A case report shows resolution of keratits in a patient after switching to tofacitinib for Rheumatoid Arthritis

<u>Conclusion:</u> This case report demonstrates the effectiveness of tofacitinib in the treatment of uveitis and retinal vasculitis. Further studies will be needed to validate this finding which should be pursued as this is an easy to administer treatment for patients.