Intraocular inflammation following intravitreal Faricimab for neovascular age related macular degeneration

A.Punit[1], H. Hasan[1], J. DaCosta[1]

[1]Newcastle Eye Centre, UK

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Introduction

Intraocular inflammation is an uncommon, potentially vision threatening adverse event following intravitreal injection therapy. It is of increasing importance due to escalating numbers of injections performed and concerns about inflammation with the use of newer anti-VEGF agents[1]

Methods

Interventional case series (n=3)

Results

Three patients are presented. The first patient was an 86 year old female who presented with anterior uveitis, vitritis, choroidal effusion and shallow retinal detachment 28 days following an eighth intravitreal faricimab (Figure 1). Previous treatment involved 10 previous aflibercept injections.
Topical and oral steroid treatment was ineffective. Intraocular pressure was normal.
Vitreoretinal intervention was required in terms of vitrectomy, drainage of suprachoroidal effusion, PVR peel and relieving retinotomy + silicone oil. (Figure 2) Vision remains Hand movements.
The second patient presented with anterior uveitis and vitritis, 61 days following a fifth faricimab injection. Intraocular pressure was elevated at 36mmHg and required topical treatment. Past treatment involved eleven uneventful aflibercept injections. Topical steroid treatment was instituted for anterior uveitis and intraocular inflammation resolved.
Vision improved from Count fingers to 6/12 and a further vabysmo injection was administered 6 months later with no further episode of uveitis in the following 2 months to date.
The third patient presented with anterior uveitis, vitritis and a choroidal effusion 32 days following a right intravitreal faricimab injection.
Vision was recorded as perception of light and a right relative afferent pupillary defect was recorded
Vitreoretinal review with ultrasound revealed a vitreous haemorrhage and 360° subretinal haemorrhage involving the posterior pole
No further intervention was planned due to poor prognosis
The patient previously suffered a lacunar cerebral infarct with post thrombolysis subarachnoid haemorrhage and was taking clopidogrel 75mg OD
The fellow eye has continued with intravitreal faricimab with no complications.

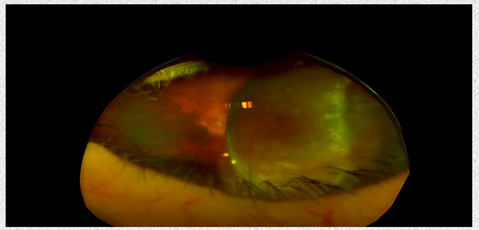


Figure 1

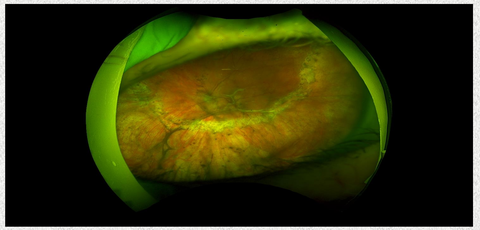
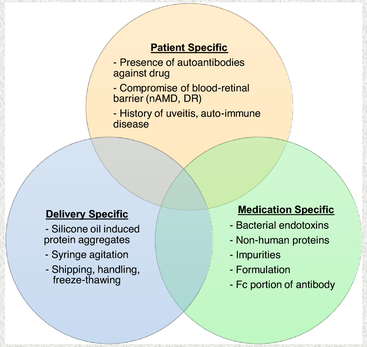


Figure 2

Conclusions

Clinical presentation in all three cases was not compatible with endophthalmitis
Causes of intraocular inflammation post intravitreal injection may be divided into patient, medication and drug delivery specific factors[2]
No patient in our series was using pro-inflammatory drugs such as prostaglandins.
It has been suggested that patients are more prone to inflammation when a breach of the blood retina barrier occurs as in exudative AMD compromising the immune privilege of the vitreous [3]
A small subset of patients have anti-idiotype antibodies against antiVEGF [4]
Molecular structural differences between drugs and manufacturing processes are postulated to be causes of differential rates of intraocular inflammation[2]
Aflibercept is administered from pre-filled syringes
Faricimab is physically drawn from the vial with a filter needle prior to administration through a 30G needle
Syringes and needles are a source of silicone oil which may induce an immunogenic response contributing to intraocular inflammation.

Causes of intraocular inflammation post intravitreal injection[2]



References

[1] Mones J. Risk of inflammation, retinal vasculitis and retinal occlusion related events with brolucizumab: post hoc review of HAWK/ HARRIER data. Ophthalmology 2021;128(7):1050-1059
[2] Anderson WJ et al. Mechanisms of sterile inflammation after intravitreal injection of antiangiogenic drugs: a narrative review. Int J Retina & Vitreous 7,37(2021)
[3] Chong DY et al. Characterization of sterile intraocular inflammation responses after intravitreal bevacizumab injection. Retina 2010;30(9):1432-40
[4] Wickremasinghe SS et al. Acute intraocular inflammation after intravitreous injections of bevacizumab for treatment of neovascular age related macular degeneration. Ophthalmology 2008;115(11):1911-5