Management of Proliferative Vitreoretinopathy with Intravitreal Methotrexate using a Treat-and-Extend Protocol

Scott D. Walter, MD, MSc
Manchester, CT

Nicholas J. Saba, MD

Purpose:
To report a novel dosing strategy using intravitreal methotrexate (MTX) as an adjuvant pharmacotherapy to prevent recurrent retinal detachment (RD) from proliferative vitreoretinopathy (PVR). Previous investigators have demonstrated high rates of anatomic success using a series of 13 intravitreal MTX injections over 4 months. This study seeks to determine whether similar success can be achieved with fewer injections using a treat-and-extend protocol.

Methods:
Retrospective consecutive case series of 50 eyes undergoing surgical repair of RD complicated by grade C or severe grade B PVR; including patients who received intraoperative and post-operative intravitreal MTX injections (400mcg/0.1mL); excluding patients with <2 months of follow-up or <3 post-operative MTX injections. All patients underwent vitrectomy with membrane peeling and/or relaxing retinectomy. The first dose of MTX was administered intraoperatively; during the loading phase, MTX was administered every 1-2 weeks until laser photocoagulation scars matured; during the extension phase, MTX was administered every 2-6 weeks until the gas resorbed or long-acting tamponade was scheduled for removal.

Results:
The final reattachment rate was 96%. Four eyes (8%) required a single reoperation for recurrent RD with PVR. The median improvement in visual acuity was -0.9 logMAR. The average number of MTX injections was 6.5 (range 4-12). The most common adverse event was corneal epitheliopathy which occurred in 20 eyes (39%) during the loading phase, and resolved with extended dosing intervals.

Conclusions:
A high rate of anatomic success can be achieved using fewer MTX injections than in the previously described treatment protocol. Further study is needed to clarify the optimal MTX dosing frequency to prevent recurrent RD from PVR.