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Evaluation for an Underlying Disease Process

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Description

Cystoid Macular Edema (CME) is an abnormal increase in fluid volume within the macula. This process can result in symptomatic changes in vision. Various retinal conditions may lead to CME with a shared pathogenesis consisting of vascular hyper-permeability, leukocytosis, and inflammation. The inflammatory process increases the vascular permeability through enhanced migration of immune cells followed by breakdown of the Blood-Retinal Barrier (BRB).

Let patients underwent full ophthalmologic examination, including testing for visual acuity and ocular alignment status, slit-lamp bio microscopy, and fundus examination. The angle of deviation was measured using an alternate prism cover test at 6 m and 33 cm fixation. The patients' strabismus conditions were considered stable for at least 3 months before surgery. All patients underwent computed tomography imaging one day before the surgery. All surgeries were performed under general anesthesia by a single surgeon. Strabismus surgery was performed using the surgical dosage of our clinic based on the patients' angle of deviation measured the day before the surgery. The surgical procedure was conducted using a libel incision.

Blood-Retinal Barrier

Inflammatory cytokines and antigenic growth factors also contribute to the impairment of BRB and the increase in vascular permeability. Common causes of CME include diabetic retinopathy, retinal vein occlusion, post-operative states, and uveitis. Treatment options for CME vary and include anti-Vascular Endothelial Growth Factor (VEGF) injections, corticosteroid injections, extended release corticosteroids, topical steroid and nonsteroidal anti-inflammatory drops and carbonic anhydrase inhibitors. In uveitis, CME treatment may also include the use of immunomodulators. Among the treatment options for chronic CME are two sustained release corticosteroid intravitreal implants. Dexamethasone intravitreal implant is one of the corticosteroids available for intravitreal use. It is injected in the form of a biodegradable implant that slowly releases 0.7 mg of active drug into the vitreous over a period of about 6 months. Dexamethasone intravitreal implant is approved by the Unites States Food and Drug Administration (FDA) in the treatment of patients with Diabetic Macular Edema (DME), macular edema following retinal vein occlusion (RVO), and non-infectious posterior uveitis.

The operated muscle underwent a conventional recession procedure without adjustable sutures. Surgical procedures for strabismus performed on all patients consisted of bilateral Medial Rectus (MR) recession, bilateral Inferior Rectus (IR) recession, unilateral IR recession, and contralateral Superior Rectus (SR) recession.

In an effort to overcome vertical diplopia, patients with poor sensory adaptation, especially children, would have a greater need for vertical fusion. The immaturity of fusion would contribute to excycloduction in the non-paretic eye. Repetitive sensorial and motor adaptations to torsional misalignment aggravate fundus extorsion in patients with USOP less than 2 years of age.

Methods

This prospective study included patients with TED who underwent strabismus surgery medial rectus (MR), inferior rectus (IR), and superior rectus (SR) recession between March 2018 and December 2020. The IOP was measured six times during surgery (5 min after intubation, after isolation of the muscle using a hook and dissection of the surrounding tissue, immediately before muscle detachment, immediately after muscle detachment, after reattachment of the muscle, and after closure of the conjunctiva).

As the primary function of the superior oblique is incyclotorsion, paralysis of the muscle can cause significant ocular excyclotorsion of the paretic eye, which is one of the typical clinical manifestations of USOP. However, excyclotorsion is not always present in the paretic eye. Several studies have found that approximately 25% of the patients with USOP had ocular excyclotorsion in the non-paretic eye.

This study was approved by the Institutional Review Board of Korea University Medical Center. It adhered to tenets of the Declaration of Helsinki. Written informed consent was obtained from all patients and their guardians. We retrospectively reviewed the medical records of 98 consecutive patients with congenital USOP diagnosed between 2001 and 2015 at the Department of Ophthalmology, Korea University Medical Center. The diagnosis of USOP was based on hypertropia, apparent elevation and under-depression in adduction of the paretic eye, anomalous head posture, or a positive Bielschowsky head-tilt test. All enrolled patients underwent full ophthalmic examination including visual acuity, refraction test, ocular movement, fixation preference

Differences in the continuous data of the APAC users and nonusers were tested using Student's t test. Differences in categorical data were analyzed using the chi-square test. The cumulative incidence of NPDR was estimated and plotted for both groups using the Kaplan–Meier method, and the difference was assessed using the log-rank test. The incidence densities of NPDR, PDR, and DME for each group were calculated as the number of NPDR, PDR, and DME events divided by the total person-years. Because some patients may not have taken APAC regularly during the study period, the effect of the drug might be overestimated.

Therefore, we considered APAC use as a time-dependent covariate in a Cox proportional hazards model to estimate the effect as HRs and corresponding 95% CIs. In the Action in Diabetes and Vascular Disease: Preterax and Diamicron Modified-Release Controlled Evaluation (ADVANCE) and its subsequent studies (ADVANCE-on), lower-extremity ulceration or amputation increased the risk of vision-threatening DR. APACs show beneficial effects on NPDR development in diabetics. The effect of APAC on progression from NPDR to DME or PDR was not significant from our study. However, it is prudent to draw conclusion from our study since the number was too small. Further investigation is needed to explore the effect of APAC on development and progression to PDR and DME.

However, there have been few studies that have elaborately compared patients with CMV-positive PSS and those with CMV-negative PSS. Most related studies have only performed a brief and tentative exploration of the possible role of CMV in PSS. It is crucial that clinicians are able to distinguish patients with CMV-positive PSS from those with CMV-negative PSS since corticosteroid treatment without antiviral treatment might cause exacerbation of CMV-positive PSS. The diagnosis of CMV infection requires diagnostic testing of aqueous humor aspirates with an antibody assay or polymerase chain reaction (PCR) analysis. Both approaches are expensive and inaccessible to all patients, especially when patients decline an aqueous tap. Therefore, we aimed to thoroughly compare eyes with CMV-positive and CMV-negative PSS to improve their distinction and allow us to better understand this ocular disease.