INTRODUCTION:
Steroids are potent anti-inflammatory agents. They are thought to inhibit production of vascular endothelial growth factor (VEGF) and have been shown to decrease the breakdown of the blood-retinal barrier. These qualities make steroids a potential treatment in many retinal disorders. Steroids have been a mainstay of treatment for ophthalmic diseases for decades.

The various modes of administration of steroids include:
1) Systemic administration: It carries the great risk of side effects, some of which are quite serious.
2) Topical administration of steroid: It is the easiest and has the least risk of side effects, this route of administration is also probably least effective due to limited drug delivery to the retina.
3) Retrobulbar or subTenon’s injections have for many years offered a compromise between better penetration and avoidance of systemic side effects.
4) Intraocular administration of drugs has typically been reserved for vision-threatening conditions such as endophthalmitis. The perceived risk/benefit ratio of intraocular injections for the other indications has been influenced by concerns of introducing an infection, detaching the retina, or drug toxicity. In the past years, the use of intraocular injections of steroids for a variety of conditions is being explored by investigators.

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Mode of Action:
Triamcinolone has the capacity to modulate epithelial cell resistance. The findings are consistent with clinical observations indicating that reduction of the permeability of the outer blood-retinal barrier, resorption of exudation, and downregulation of inflammatory stimuli are the principal effects of intravitreal triamcinolone. Glucocorticoids are known to display differential capacities to mediate antiangiogenic, anti-inflammatory and permeability...
Patients with the following conditions involving disorders of retinal blood vessels may be eligible for this study: 1) Choroidal neovascularization associated with age-related macular degeneration (50 years of age and older) 2) Macular edema associated with retinal vein occlusion (18 years of age and older) 3) Diabetic macular edema (18 years of age and older)

**Route of Administration:**
1) Direct intravitreal administration: The medication is injected through the pars plana under topical anesthesia, in strict aseptic conditions, usually in the inferior quadrants to avoid dispersion of the suspension over the central vision. Direct injection of triamcinolone acetonide also shows promise for the treatment of diabetic macular edema.
2) Systems intravitreal implant of fluocinolone acetonide for treatment of macular edema (FAME 4 Study). This implant is a steroid compound pellet incorporated into a plastic strut. The implant is placed through the pars plana and the strut is secured to the sclera with suture. It does not interfere with vision, since the implant is placed far into the periphery and does not extend into the visual axis. It is similar in appearance and function to the ganciclovir intravitreal implant (used for cytomegalovirus retinitis, allowing a slow release of medication over a prolonged duration. The fluocinolone is released over three years, supplying a constant flow of medication to the retinal vessels.
3) Another clinical trial is evaluating Oculex Pharmaceuticals’ dexamethasone posterior segment drug delivery system (DEX PS DDS). The study is a Phase II trial of the steroid implant in the treatment of persistent macular edema. The dexamethasone is incorporated in a biodegradable polymer platform designed for the slow release of the steroid over approximately four to five weeks, with complete bioreorption of the polymer platform over 50 to 160 days. It is inserted through the pars plana and is smaller than a pencil tip. The pellet lodges in the vitreous base, delivering medication to the posterior segment.

**COMPLICATIONS:**
1) Of the procedure:
   A) Infection
   B) Retinal detachment
   C) Hemorrhage
5) What is the safety of the drug.

References: