Guest Editorial

Shaken not Stirred

On numerous occasions in modern history, the world has been the beneficiary of significant contributions from Great Britain in fields such as literature, music, and science. Ushered in by Sir William Bowman and catapulted by the great works of Sir Stewart Duke-Elder, modern British ophthalmology has similarly made many great advances in the form of therapeutic and diagnostic innovations.

cellular membranes at the vitreoretinal subretinal space. The membranes are composed of retinal pigment epithelial cells, glial cells, fibroblasts, and inflammatory cells (mostly macrophages). These membranes induce recurrent retinal detachment and choroidal detachment, cryopexy, introducing serum components into the vitreous.2 The use of excessive cryopexy are muscle fibers and some cells, which are important in normal wound healing and pathogenesis of PVR.3 Of recent interest in this regard is the development in the posterior vitreous cortex.4 Among the first cells to be exposed to the noxious stimuli are the hyalocytes, resident macrophages. Other cells, including lymphocytes and mononuclear cells, can also be found in the retina in PVR.5 Furthermore, as the membranes migrate and proliferate, the development and course of PVR.6

In the surgical arena, where vitreous PVR. In the 1970s and early 1980s the reported surgical success rates were no better than 40% in severe cases.7 However, the study performed by Asaria and colleagues published in this issue of Ophthalmology (pages 1179-1183) showed statistically and clinically significant eeficacy using 5-fluorouracil, the same agent that failed, but this time in combination with low molecular weight heparin. Vitrectomy was performed in 174 cases of primary rhegmatogenous retinal detachment with half of the cases receiving the “British PVR cocktail” as part of the solution.
received a placebo infusion solution. Combination therapy with 5-fluorouracil and heparin decreased the incidence of postoperative PVR by more than 50% (P = 0.02). As a secondary result, final visual acuity was substantially better in the group that did not develop PVR (P < 0.001).

The principal reason for the success of this is the fact that each of the two major components in the pathogenesis of PVR are treated by the “British PVR cocktail”: the antimitogenic properties of 5-fluorouracil prevent the proliferation of cells within vitreous, whereas heparin reduces the effects of inflammation by binding postoperative fibrin and growth factors. Furthermore, because the cells responding to the chemotactant and mitogenic stimuli of inflammation do so within the extracellular matrix of the vitreoretinal interface, heparin can have additional beneficial effects by interacting with extracellular matrix components at this interface, likely rendering the scaffold less suitable for cell migration and proliferation. Moreover, this study randomly assigned only patients determined to be at risk for PVR on the basis of selected clinical criteria previously found to have high discriminant power (Kon et al. Br J Ophthalmol, in press). A companion article in this issue of Ophthalmology (pages 1184–1186) describes the results of a prospective study of 212 patients that were classified as low or high risk for PVR on the basis of this discriminant analysis. The incidence of PVR was 9.2% in the “low-risk” group vs. 28% in the “high-risk” group (P < 0.001). The use of this approach to increase the prevalence of PVR in the combination drug therapy study increased the “signal-to-noise” ratio in this population, amplifying the beneficial effects of preventive therapy to a statistically and clinically significant level.

As a result of these two landmark studies, ophthalmologists throughout the world can now identify which of their patients are at risk of developing PVR and serve them the concoction of 5-fluorouracil and heparin as effective prophylaxis. Thus, from the folks who brought us “tonic” for malaria, we now have the “HEPURA” cocktail for PVR.

References


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