SUMMARY

Viscoelastic substances are recently used to maintain the anterior chamber during intraocular anterior segment surgery in order to reduce the risk of damage to the corneal endothelium.

In this study, a comparison between two substances, namely 1 % Sodium hyaluronate (Healon) and 2 % hydroxypropyl methylcellulose (HPMC), was made to evaluate their safety and efficacy on the corneal endothelium in cases of extracapsular cataract extraction and posterior chamber intraocular lens implantation.

Many studies were carried out , in the past few years,on sodium hyaluronate testing its safety and efficacy on humans, while only very few were done on methylcellulose , and mostly on animals.

In evaluating the results of the study, it was found that regarding the intraocular pressure, the effect of methylcellulose on raising the intraocular pressure was less than Healon.

The mean percentage increase in corneal thickness after surgery was almost the same in the two groups. The recovery time - which is the time elapsed till the corneal thickness returned to its preoperative level - is faster in case of methylcellulose than in Healon.

Methylcellulose caused less endothelial cell loss than Healon , and although the difference was small, yet, it could be considered significant.

The cell size showed a higher percentage of increase in the Healon group postoperatively than in the Methylcellulose group. While there was

no significant difference in the cell shape between the two groups postoperatively.

Healon is a very good viscoelastic material which showed great efficacy in maintaining the A in cases of extra- capsular cataract extraction and intraocular lens implantation particularly in cases where vitreous pressure is high . Methylcellulose, though it is of low viscosity and elasticity, yet it can be used efficiently in a great number of cases where vitreous pressure is not high.

Methylcellulose is inexpensive in comparison to Healon , and this is the most important advantage which makes it easy available for use in the developing and underdeveloped countries. Yet, some researchers believe that it is not free from hazards. These hazards may be clear but the risks remain uncertain. We do not know how the tissues of the surgically exposed eye will react to the various contaminants either in general or in the cases of sensitive individual patients.

Many surgeons report successful treatment using HPMC without complications. On the other hand some difficulties that do occur may be related to the HPMC contaminants, there being no systematic study available to date.

Rational systematic judgement is hampered by the very variable range of types and abundance of particles in HPMC. This is surely ground for greater caution. However, the low cost of HPMC may be illusory if the need for greatly improved filtration and sample inspection is accepted.