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Editorial: Update on Glaucoma Diagnosis and Management

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Glaucoma is one of the most dreadful ocular conditions that affects millions of people worldwide and is one of the major causes of irreversible blindness. Although glaucoma is a complex and poorly understood disorder, the primary goal of therapy is lowering Intraocular Pressure (IOP), which is not only one of the most significant risk factors in development of the disease, but also the only modifiable one. Therefore, a precise measurement of IOP is essential for accurate diagnosis and effective monitoring of glaucoma. Goldmann applanation tonometry is the gold standard method for IOP measurement. It has been known that IOP measurement by this method is affected by corneal properties; typically, thick corneas overestimate and thin corneas underestimate the IOP. Therefore, several methods had been introduced to correct IOP based on the central corneal thickness. However, those methods had oversimplified the problem, and ignored important factors such as corneal viscosity and elasticity. New generation of devices such as Ocular Response Analyzer (Reichert[®]) and CorVis ST (Oculus Inc.[®]) have been devised that can account for corneal biomechanical properties when measuring IOP. It is claimed that these methods are particularly useful for eyes with inherently abnormal and surgically altered corneal biomechanics such as those who have undergone laser vision correction or keratoplasty [1].

Around two-thirds of patients with glaucoma may have their highest IOP readings beyond regular clinic hours, especially during the night. Actually, these undetected IOP spikes have been suggested to play a role in progressive glaucomatous optic neuropathy in a subset of glaucoma patients with apparent normal office-based IOP readings. Therefore, determining the role of IOP fluctuation in glaucoma warrants more extensive research. Accordingly, a 24 hour continuous (or frequent) IOP monitoring would be a commendable goal, especially for those with unexplained progression [2]. In addition to IOP fluctuation, the potential role of corneal characteristics, pathologies, and prior operations on IOP measurement should be considered when interpreting patients' IOP. While there is no single method which provides an easy, quick and accurate result in all cases, the practitioner should adopt a patient-oriented strategy to select the most appropriate method, based on established strengths and limitations of each device [1].

Antiglaucoma eye drops comprise the mainstay of treatment in most cases of glaucoma. However, some patients still need laser and surgical procedures to prevent glaucoma progression. Nowadays, similar to other aspects of ophthalmology, utilization of laser plays a tremendous role in glaucoma treatment. Typical laser surgeries for glaucoma include laser peripheral iridotomy, laser iridoplasty, laser trabeculoplasty, and laser cyclophotocoagulation. There are also emerging methods of glaucoma laser therapy using advantages of novel inventions such as micropulse laser and pattern delivery [3]. Several surgical procedures have been introduced to help in achieving normal IOP where topical medications are inappropriate or inadequate. For several decades, filtering surgeries (trabeculectomy and shunt) have been used successfully to control IOP in a variety of cases with glaucoma. Although the primary concept has not been changed since then, recent growing knowledge about wound healing allows using modified techniques and novel adjuvants to achieve more efficient filtering blebs with less associated complications [4]. In contrast to open angle glaucoma, small incision cataract surgery with or without goniosynechialysis may be a good alternative for medications or even filtering surgeries in selected cases with angle-closure glaucoma. It can efficiently widen the iridocorneal angle,

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evades anatomical predisposition to angle closure, and significantly improves IOP control without long-term complications of trabeculectomy [5].

The 5 solicited review articles of this issue deals with the most recent advancements in glaucoma diagnosis and treatment and update the readers with useful and practical information in this regard.

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