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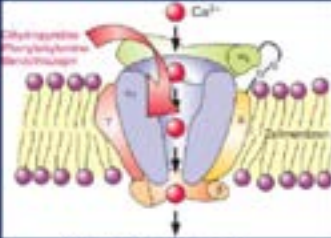
The use of calcium channel blockers for normal tension glaucoma

The goal of glaucoma treatment is the preservation of visual function. In high-tension glaucoma, this is mainly achieved by reducing Intra Ocular Pressure (IOP). The effect of IOP- lowering treatment is less effective and less well documented in patients with Normal Tension Glaucoma (NTG). Although even in this group of patients, IOP may play a role, other risk factors are obviously also involved. Knowledge about the effects of modulating other risk factors is still limited. We know, however, that oxidative stress due to an unstable blood flow plays a role in the pathogenesis of damage. Ocular blood flow (OBF) is particularly unstable in patients with Primary Vascular Dysregulation syndrome (PVD). Among the drugs currently available, Calcium Channel Blockers (CCBs) are considered the most promising treatment for regulating OBF. Indeed, treatment with CCBs, especially when used at low doses, has repeatedly been reported to be beneficial for NTG patients, particularly when they suffer from PVD. These patients normally present both an irreversible as well as a reversible component of visual field defects. If the visual fields improve after short- term treatment with certain drugs (the reversible component decreases), then there is a high probability that this treatment will also be beneficial when used over the long term. Magnesium is a “physiological CCB”. While its effect is weaker, side effects are also less pronounced than those of CCBs. It is therefore advisable to begin treatment with magnesium and then to switch over to CCBs only if the effect of magnesium is insufficient. Nevertheless, It can be difficult to find an appropriate CCB at the right concentration. As the main indication for CCB administration is the treatment of systemic hypertension, low-dose CCBs are usually not available. As an exception, nifedipine is available in a liquid form, which can be applied as low-dose drops.

Some general background information
CCB's reduce calcium conduction of calcium channels

Classification

- Dihydropyridines (e.g. Nifedipine)
- Phenylalkylamines (e.g. Verapamil)
- Benzothiazepines (e.g. Diltiazem)



Mozaffarieh M., Flammer J.
Expert Review Ophthalmol (2010)

References

1. Mozaffarieh M & Flammer J. (2009) Ocular blood flow and glaucomatous optic neuropathy. Springer. ISBN 978-3-540-69442-7.
2. Flammer J, Mozaffarieh M, Bebie H. (2013) Basic sciences in ophthalmology. Physics and chemistry. Springer. ISBN 978-3-642-32260-0.
3. Fang L, Neutzner A, Turtschi S, Flammer J, Mozaffarieh M. (2015) The effect of Gingko biloba and Nifedipine on DNA breaks in circulating leukocytes of glaucoma patients. Expert Rev. Ophthalmol. 10(3), 313-318.
4. Fang L, Turtschi S, Mozaffarieh M. (2015) The effect of nifedipine on retinal venous pressure of glaucoma patients with the Flammer-Syndrome. Graefes Arch Clin Exp Ophthalmol. 253(6):935-9.
5. Mozaffarieh M, Konieczka K, Flammer J. (2010) Calcium channel blockers: their use in normal tension glaucoma. Expert Rev Ophthalmol 5(5):617-25.

Biography

Maneli Mozaffarieh is currently working at the Limmat Eye Center in Zürich, Switzerland. She is also working at the University of Basel. Her expertise is mainly in the fields of glaucoma and microcirculation. She has published many articles in reputed journals.