



Lasik's Next Frontier-Avoiding the Pals Syndrome

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Editorial

Success with Lasik surgery is gained with achieving spectacle free vision of 20/20 in daylight and low night light and becoming free to enjoy many activities not previously possible when glasses or contact lenses are required. However some disappointment sets in when the low light and night vision is disrupted by the presence of one or more disabling symptoms of glare, ghosting, starbursts, haloes and loss of contrast sensitivity labelled by many with the acronym "GASH". In most cases this was not present prior to LASIK, PRK and SMILE surgery so naturally is a surprise as it has not been predicted or expected.

The symptoms of GASH do not resolve over time sufficiently to alleviate these disturbing dysphotopsias, and when associated with corneal astigmatism post-surgery greater than 1.00 D and preoperative corneo-refractive differences greater than 1.00 D as quantified by the ORA (Ocular Residual Astigmatism), then it is known as the PALS Syndrome the acronym for Predictable Avoidable Lasik Surprise [1,2]. With conventional treatment of manifest or wavefront refraction which is practised by more than 95% surgeons worldwide, all the ORA, an internal eye aberration, is neutralised on the cornea leaving corneal astigmatism which in many cases is above the threshold many eyes can tolerate for avoidance of these distressing symptoms. This has been brought to our attention by unhappy patients who have aired their grievances by complaining of these symptoms, due in many cases I believe to excess corneal astigmatism, to the FDA before or after it was made public in 2008 or in response to the recent New York Times article published more recently on the subject in June 2018 [3].

It has been shown by Maria Arbelaez et al. [4] of Oman in her published paper in JCRS of December 2017, which Vector Planning™ can reduce post-op corneal astigmatism by 41% without any resultant increase in the postoperative refractive cylinder but a significantly improved visual outcome [5]. Her paper was based on a technique published in 1997 [1]. Using the technique of Vector Planning™ would have for many patients eyes at risk with an ORA greater than 1.00 D, reduced their post-operative resultant astigmatism to a tolerable level below 1.00 D. The ORA is not calculated by most doctors prior to surgery, so the patients at risk of the PALS Syndrome are not identified prior to the laser procedure so are unaware of what might occur with refraction driven treatments.

None of the laser companies have provided the facility of Vector Planning™ despite its known benefits. It could be incorporated into any modern day laser as a software option for refractive surgeons to use and provide a safer mode of laser vision correction for their patients: a so called "SAFE" button or "low astigmatism" button enabled by Vector Planning™.

Until this is made generally available, refractive surgeons can avail themselves of a free website calculator at www.assort.com for the calculation of ORA and the free use of the Vector Planning application to use for their patients and provide the benefits of less overall resultant corneal and refractive astigmatism and a greatly reduced incidence of GASH and PALS in their patients.

The utilisation of the Vector Planning™ facility provided by ASSORT™ can only improve outcomes as shown by Arbelaez et al. [4] study and increase the uptake of the amazing innovation of laser vision correction for spectacle independence with reduced associated risk of unpleasant night vision problems.

Financial Disclosures

Prof. Noel Alpins report a financial interest in ASSORT Surgical Management Systems which holds trademarks in Vector Planning™.

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Received Date: 08 May 2019

Accepted Date: 23 May 2019

Published Date: 27 May 2019

Citation:

Alpins N. Lasik's Next Frontier-Avoiding the Pals Syndrome. J Clin Ophthalmol Eye Disord. 2019; 3(1): 1028.

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