Therapeutic refractive surgery: why we should differentiate?

Cirurgia refrativa terapêutica: por que diferenciar?

In the early '80s, the advent of elective surgeries in order to reduce dependence of vision correction (eyeglasses or contact lenses) determined profound changes in Ophthalmology. Although refractive procedures were initially controversial, they quickly gained popularity among physicians and potential candidates. This determined a demand for developments in knowledge. With that, there was a great stimulus for research in basic and clinical chairs, which increased the understanding of various aspects of physiology, pathology, and diagnosis in corneal and ocular optics. As a result of this rapid evolution, Refractive Surgery achieved recognition by the international scientific community to be considered as a true subspecialty of Ophthalmology.

The need for evolution has always been related to the fact that these procedures involve patients without ocular disease apart from refractive errors (myopia, hyperopia and astigmatism). With this, the technologies related to pharmacological and surgical treatments and had still an ongoing development. Noteworthy is the advent of different types of lasers, such as excimer and femtosecond lasers.[1] Unquestionably, this evolution has provided a dynamic and constant increase in the safety and efficacy of these procedures. In this scenario, the "gold standard" is highly mutable, which requires for the specialist or ophthalmologist interested in this area, constant updating and investment.

The knowledge and technological development related to Refractive Surgery have also been applied in different ophthalmic conditions, highlighting cataract.[2-4] Either the diagnosis, as an indication, planning and performing cataract surgery had great influence and benefits of scientific progress driven by new subspecialty. Given this undeniable revolution, there is a worldwide trend of scientific societies related Cataract and Refractive to work together and to unify, as happened in Brazil with SBCII (Brazilian Society of Cataract and Intraocular Implants) and SBCR (Brazilian Society of Refractive Surgery). In addition, the diagnosis and treatment of various conditions and diseases of the cornea also had positive influence of this accumulated knowledge, highlighting keratoconus.[5-6] However, the fundamental differences of truly therapeutic and elective refractive surgeries should be recognized and considered.

Elective can be defined as what you choose. Therefore, elective Refractive Surgery would be an option (alternative) to other efficient forms of vision correction, such as glasses or contact lenses. In these cases, glasses or contact lenses typically allow optical correction satisfactory and relatively adequate. Surgeons must perform tests to determine the feasibility and safety of surgery for each case and enable appropriate surgical planning. However, the decision to perform such a procedure should be exclusive of the patient, who must be informed of the risks, benefits and limitations for a conscious decision.

On the other hand, in the case of therapeutic procedures, correction by glasses or contact lenses is relatively unsatisfactory for the patient, which may occur in varying degrees of limitation of visual acuity (quantity) and visual quality. For example, the visual acuity could be less than 20/400 in a case of advanced keratoconus, or even 20/20 in a case of irregular astigmatism that causes severe impairment of visual quality of the patient and the consequent impact on their quality of life. In these cases, there are high levels of higher order aberrations, and keratoplasty (corneal transplantation) could possibly be considered. In fact, it would be the only alternative before the advent of technology that enables us to perform refractive procedures therapeutic presenting unquestionably as a less invasive alternative for visual rehabilitation.

Several procedures originally described as refractive may also be indicated for therapeutic purposes. The implant of ring segments for intra-corneal keratoconus was originally described for refractive treatments. Moreover, treatment for promoting stromal covalent bonds in collagen (crosslinking) emerged in research center Refractive Surgery, purely as a therapeutic procedure to stabilize the progression of ectasia.[7] However, other procedures may be performed either as therapeutic ou refractive. For example, a patient with anterior stromal opacity associated with irregular astigmatism due to dystrophy or scarring after keratitis may benefit from surface ablation therapy. In this case, besides the application of the excimer laser on PTK mode (Phototherapeutic keratectomy), the customized ablation mode PRK (Photorefractive keratectomy) based on total or corneal wavefront followed by application on mitomycin C is used quite similarly to elective advanced surface ablation treatments (laser vision correction). However, the goals of advanced surface ablation in both situations are very different, as the outcome measures and success.

In therapeutic procedures, the goal is to provide good corrected vision with sphere-cylindrical refraction (glasses) for the patient. Thus the measure of success is related with improvement of visual acuity. In these cases, the refractive goal is secondary. In refractive surgery, the goal is to reduce ametropia to provide adequate uncorrected vision and less dependence on glasses or contact lenses. Thus, the uncorrected visual acuity is the primary variable that represents

the effectiveness and the benefit from surgery. However, the comparison of visual acuity with correction before and after surgery has always been related to the safety of any eye surgery.

While refractive surgery is essentially optional, there are special situations in which its indication has a greater need. For example, a patient with anisometropia and intolerance to contact lenses may not have satisfactory correction with glasses, and in these cases we can even consider surgery as therapeutic. Additionally, other situations may be related to activities that the patient has, such as athletes and military.

A case with therapeutic indication may, with the evolution of the initial treatment, become refractive. For example, a patient with keratoconus is operated with implantation of corneal ring segments with marked improvement of visual acuity with glasses to correct high myopia. In this scenario, the phakic intraocular lens implantation may be considered for the treatment of low-order aberrations - as in Bioptics Therapeutic approach (R. Ambrósio Jr, Ocular Surgery News, December, 2011). The need and indication of such refractive treatments should be considered according to each case .

Another aspect of capital importance is related to the confusion between cosmetic surgery and elective refractive surgery. In general, all cosmetic surgeries are optional. However, refractive surgical correction does not, in any way, have an esthetic nature. The procedure is functional because ametropia reduces the ability of the patient to function on simple daily tasks.[8] In fact, the use of glasses can have aesthetic appeal and a great relationship with the image of the person. For example, a patient with LASIK refractive surgery the next plan and acuity without correction was 20/20, so no need to fix to improve visual acuity, is asking for prescription glasses to wear at work, since he, like psychoanalyst, sit with your image better with the glasses.

Therefore, it is essential to distinguish refractive surgery with the goal of refractive corrections and therapeutic surgery. While elective refractive surgery aims to reduce dependence on vision correction (spectacles or contact lenses), the therapeutic aims for restoring vision, with a refractive secondary objective. The term elective could also be used to designate a non-urgent or other emergency procedure. Thereby, all surgery that can be planned without urgency is properly designated as an elective. In this context the therapy is essentially an elective surgery, with exception to special cases in which there is an associated risk of progression with sequels. However, the fundamental differentiation between the refractive surgery for therapeutic purposes is related to the preoperative status in which corrected visual acuity is not suitable with glasses or contact lenses due to high levels of higher order aberrations. The implications of the distinction should be considered for clinical and medico-legal standpoints.

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