

Epidemiological Profile of the Contact Lens Sector of the Benjamin Constant Institute in Rio de Janeiro

Perfil Epidemiológico do Setor de Lentes de Contato do Instituto Benjamin Constant do Rio de Janeiro

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ABSTRACT

Objective: The objective of this project is to describe the epidemiological profile of the Contact Lens Sector of the Benjamin Constant Institute in Rio de Janeiro. **Methods:** A retrospective study of 788 cases was carried out from March / 2004 to June / 2015. **Results:** Most of the objects in the cases were female (62.23%). As for the indication, 445 cases (56.47%) were optical, 281 cases (35.65%) were esthetic, 44 cases (5.58%) were prosthetic, and 18 cases (2.30%) were cosmetic. The most prevalent age group was from 20-39 years of age (46.34% of cases), followed by 40-64 years of age (25.31% of cases). Of the total of adapted cases, 81.6% were with rigid lenses, and among the optical medical indications, 61.4% of the cases were by keratoconus. **Conclusions:** Because it is a reference medical service, whose main objective is the rehabilitation of patients with low vision, the optical medical indication was the most frequent. The rigid lenses showed up with a prominent role in the adaptations.

Keywords: Adaptation; Cornea; Visual acuity; Contact lenses

RESUMO

Objetivo: Descrever as estatísticas do Setor de Lente de Contato do Instituto Benjamin Constant do Rio de Janeiro. **Métodos:** Estudo retrospectivo de 794 casos no período de março/2004 a junho/2015. **Resultados:** A maior parte dos casos foi do sexo feminino (62,21%) e a indicação mais frequente foi médicas ópticas (56,04%). A faixa etária mais prevalente foi a de 20-39 anos, correspondendo a 46,34%, e em seguida a de 40-64 anos (25,31%). Do total de casos adaptados, 81,6% foram com lentes rígidas. Entre as indicações médicas ópticas 61,4% dos casos foram por ceratocone. **Conclusões:** Por ser tratar em um serviço médico de referência, cujo principal objetivo é a reabilitação de pacientes com visão subnormal, a indicação médica óptica foi a mais frequente. As lentes rígidas mostraram-se com papel de destaque nas adaptações.

Descritores: Adaptação; Córnea; Acuidade visual; Lentes de contato

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INTRODUCTION

The adaptation of contact lens in the ophthalmologic clinic plays a very important role, either for aesthetic or medical reasons, allowing the visual rehabilitation in cases in which glasses do not provide a good vision. The teaching of the studies of contact lenses in the services of medical residency is fundamental so that in fact the adaptation of contact lens is a medical act, allowing an integrated assistance to patients.

Despite the increasing technological advances of refractive surgeries, the number of contact lens wearers has been increasing with the development of new materials and designs that make them safer, more comfortable and favorable to the correction of most refractive errors.

The World Health Organization estimates that about 153 million people worldwide have some type of ametropia.⁽¹⁾ In Brazil, ametropia affects about 4 million people.⁽²⁾ Myopia is the most common disorder, being that in adults, its incidence varies between 15% and 49%, while rates among children are between 1.2% and 42%.⁽³⁾

It is estimated that about 125 million people in the world wear contact lenses (2% of the world's population)⁽⁴⁾, including 28 to 38 million in the United States (4,5) and 13 million in Japan.⁽⁶⁾ The types of lenses used and prescribed vary considerably across countries, with rigid contact lenses accounting for about 20% of lenses prescribed in Japan, the Netherlands and Germany, but representing less than 5% of those prescribed in Scandinavia.⁽⁴⁾

The present study aims to describe the statistics of the Contact Lens Sector of the Benjamin Constant Institute in Rio de Janeiro.

METHODS

We retrospectively studied 788 cases of contact lens adaptation in patients referred to the Contact Lens Sector of the Benjamin Constant Institute in Rio de Janeiro (IBC-RJ) from March 2004 to June 2015. All patients were submitted to a complete ophthalmologic examination. Patients whose records had incomplete data were excluded from the present study. The age groups were subdivided into 0-9 years of age, 10-19 years of age, 20-39 years of age, 40-64 years of age and over 64 years of age.

The following criteria were used for the classification of refractive errors: high ametropia (hypermetropia greater than +6.00 diopters or myopia greater than -9.00 diopters), astigmatism (from 1.00 diopters, being considered high astigmatism greater than 3.00 diopters), and anisometropia when the difference between the spherical diopters of the two eyes were greater than 3.00 or the difference between the cylindrical diopters were greater than 2.00.

In patients with keratoconus, data on the number of adapted eyes and the severity of keratoconus were also collected. The keratoconus was classified according to the maximum corneal curvature measurements, as incipient (up to 45D), moderate (above 45D to 52D), advanced (above 52D to 60D) and severe (above of 60D).

In regards to the indication, it was considered esthetic when the objective was the correction of ametropias (in those who had good vision with glasses), cosmetic when the objective was to modify the color of the iris (with or without ametropia), prosthetic when the objective was to cover up ocular surface defects (with or without optical purpose), and medical optics for cases of anisometropia and / or irregular astigmatism (when satisfactory visual acuity was not obtained with the use of glasses).

The present study analyzed the data related to gender, age, indication and type of adapted contact lens, and this research was previously submitted and approved by the Human Beings Ethics and Research Committee of the Valença College of Medicine, Rio de Janeiro.

RESULTS

Of the total amount of analyzed cases, 294 (37.30%) were male and 494 (62.70%) were female. The most prevalent age group was of 20-39 years of age, corresponding to 362 cases (45.93%), followed by the 40-64 years of age with 201 cases (25.50%), 10-19 years of age with 197 cases (25%), older than 64 years of age with 19 cases (2.41%), and 0-9 years of age with 9 cases (1.14%).

In relation to the indication, 445 cases (56.47%) were optical, 281 cases (35.65%) were aesthetic, 44 cases (5.58%) were prosthetic, and 18 cases (2.3%) were cosmetic. In male patients, 177 cases (60.20%) were optical, 90 cases (30.62%) were esthetic, 20 cases (8.16%) were prosthetic, and 3 cases (1.02%) were cosmetic. In females, 268 cases (54.25%) it was optical, 191 cases (38.66%) were aesthetic, 20 cases (4.04%) were prosthetic, and 15 cases (3.05%) were cosmetic. (Figure 1)

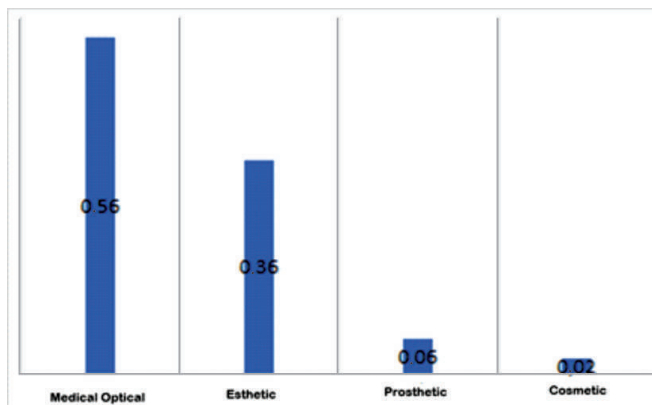


Figure 1: indication for contact lens adaptation

Among the medical indications, 280 cases (63%) were by keratoconus, 134 cases (30%) by anisometropia, 18 cases (4.1%) per appetency, 7 cases (1.58%) by other causes of irregular astigmatism, 2 cases (0.44%) after corneal transplant, 1 case (0.22%) by nystagmus, 1 case (0.22%) due to lens dislocation, 1 case (0.22%) due to marginal degeneration and 1 case (0.22%) due to photophobia due to iridodialysis.

Out of the patients with keratoconus, 175 patients (326 eyes) were selected, who maintained the minimum follow-up of 12 months in our service with good adaptation to contact lenses. Of the analyzed eyes, 7 (2.1%) were classified as incipient keratoconus, 267 (81.9%) as moderate, 41 (12.5%) as advanced and 11 (3.3%) as severe. From the total eyes adapted in patients with keratoconus, 262 (80.3%) were with single corneal lenses, 56 (17.1%) with rigid contact lenses with special designs, 3 (0.92%) with lenses rigid sclerals, 2 with special gelatinous contact lenses, in 1 case the adaptation to rider (with gelatinous lenses under the rigid lenses). Of the adaptations performed in patients with keratoconus, 151 (86.2%) were binocular and 24 (13.7%) were monocular. Of the total of adapted eyes, 262 (80.3%) were with single corneal rigid lenses, 56 (17.1%) with rigid contact lenses with special designs, 3 (0.92) with rigid sclera lenses, 2 with

special gelatinous contact lenses, being carried out in 1 case the adaptation to Piggyback lenses.

Among the aesthetic indications, 188 cases (73.43%) were due to myopia (93 cases due to high myopia), 32 cases (12.5%) due to farsightedness (14 cases of hypermetropia, 32 cases (12.5%) with astigmatism (with 17 astigmatism cases and 4 cases (1.57%) with presbyopia having emmetropia for far, being in these cases the monovision technique (with one of the eyes for close range). Of the total of evaluated cases, 124 were high ametropia, representing 65.95%.

Among the prosthetic indications, 32 cases (72.8%) were for leukoma, 4 cases (9.09%) were for aniridia, 3 cases (6.81%) were for leukocoria, 2 cases (4.54%) were for keratopathy in range, 1 case (2.27%) per iris coloboma, 1 case (2.27%) per microcornea and 1 case (2.27%) per phthisis Bulbi.

Of the total adaptations performed, 658 cases (83.5%) were with rigid lenses, 654 (99.4%) with corneal lenses, 3 (0.45%) with scleral lenses and 1 (0.15%) with adaptation to Piggyback. In 130 cases (16.5%) gelatinous lenses were adapted, 78 (60%) with spherical gelatinous lenses, 44 (33.84%) with aesthetic filtering lenses and 8 (6.15%) with toric gelatinous lenses.

DISCUSSION

The most frequent contact lens was the medical optical (56.04%), because it is a referential medical residency service in Rio de Janeiro, with predominance in these cases of patients with keratoconus (61.4%) and anisometropia (29.8%). Keratoconus is one of the most widely diagnosed corneal diseases, with prevalence rates ranging from 4 to 600 cases per 100,000 individuals, corroborating the data found in our study.⁽⁷⁻¹⁰⁾

Out of the patients with keratoconus 80.3% were rigid monochrome corneal lenses. The adaptation of rigid contact lenses is the main option for visual rehabilitation in patients with keratoconus, when the glasses no longer provide a satisfactory visual acuity, since they neutralize the irregularities of the corneal surface, being able to correct all the optical aberrations with marked improvement of the visual acuity even in advanced stages of the disease. The indication of surgical procedures in patients with keratoconus should be reserved only for cases of failure to adapt to contact lenses. Thus, it is very important for the ophthalmologist to perform adaptation of contact lenses in patients with keratoconus, since this allows the postponement of the need for invasive procedures.⁽¹¹⁾

In cases of presbyopia, the patients had emmetropia for distance in both eyes, so the technique of monovision was performed. In other cases of presbyopia where there was correction for distance, either by aesthetic or optical medical indication, glasses were prescribed close with the contact lenses in use. There was a preference for the monovision technique, with one eye corrected for distance and the other for proximities, due to its lower cost not requiring specific lenses for presbyopia, and that in other cases of presbyopia with ametropia for distance, the prescription option was preferred from glasses for short distance with the contact lenses in use, for the same reason described above, enabling better vision and binocularity.

In the cases of aesthetic indication, 65.95% of the patients had high ametropias, and in these cases there is a greater advantage of contact lenses in relation to the glasses, since they provide a more natural size vision with visual field improvement.

From the total cases adapted, 81.6% were with rigid lenses and 10.6% were gelatinous lenses. Rigid corneal contact lenses correct all corneal aberrations, including those of high order, providing better quality of vision mainly in cases of irregular astigmatism, with greater safety for patients. Due to its low cost, easy maintenance and less likely to cause infections, rigid lenses remain a great option for the correction of astigmatism of corneal origin.⁽¹⁰⁾

Most cases of *Acanthamoeba* keratitis reported in the literature occur in association with contact lens wear. Historically, predisposing factors include corneal trauma associated with contaminated water.⁽¹²⁾ It has been shown that compared to rigid gas-permeable lenses, the risks of a long-lived hydrophilic lens cause infectious keratitis is 21 times greater, and a hydrophilic lens of daily use is 4 times higher.^(13,14)

Some years ago, there was a resurgence of scleral lenses, with the improvement of designs and materials with high permeability, allowing greater comfort for patients and resolution of more complex cases. However, this type of adaptation requires special attention to the region of the adjacent limb and sclera so there is no compression and complications in the medium or long term.⁽¹⁵⁻²²⁾

In general, we should start with the simpler options of rigid corneal lenses, which in most cases achieve good resolution, with lower cost and easier handling for patients. The Benjamin Constant Institute is a federal institution, which operates a medical residency service accredited by the Ministry of Education and Culture and which provides free ophthalmological medical services, in which most of the population served is low-income patients.

There are few recent studies in the literature about contact lens adaptation statistics, especially in medical residency services. Tabushi et al. made a survey of the optical medical indications of 39 patients fitted with contact lenses in 667, 66.67% of whom used rigid lenses, and the most frequent cause was keratoconus (36.23% of the indications) and Anisometropia occurred in only 1.44% of the cases.⁽²³⁾ In 2005, Cukierman et al. Showed that the most prevalent optic medical indication was anisometropia in 54% of cases, followed by keratoconus in 44%, and that of the total of adapted cases, 64.51% were with rigid lenses and 35.49% with gelatinous lenses.⁽¹¹⁾ This may be explained by the advantages that rigid lenses offer in quality of vision, eye health, ease of care and durability, although gelatinous lenses are initially more comfortable.^(10,23)

In the present study, most of the adaptations were of rigid corneal single-lens lenses, due to their good resolution with safety and low cost. It should also be considered that in the present work an 11-year and 4-month survey (up to June 2015) of the IBC-RJ Contact Lens Sector was carried out, and that in this period (and afterwards) there was a great advance in the drawings and lens options available in our market.

CONCLUSION

The contact lens adaptation has a prominent role in the ophthalmologic clinic. Since it is a reference medical residency service, most of the cases seen in the Contact Lens Sector of the IBC-RJ had an optical medical indication with rigid lens adaptation, enabling the visual rehabilitation of needy patients and the teaching about contact lenses to resident physicians.

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