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Original article

Beta-lactamic antibiotics allergy in cataract surgery. Prevalence and preoperative characteristics of allergic patients[☆]



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ABSTRACT

Objective: To describe the proportion of patients allergic to β -lactam antibiotics and the prevalence of preoperative conjunctival bacteria among those undergoing cataract surgery in our area.

Method: Retrospective cross-sectional study of prevalence of β -lactam allergic patients consecutively scheduled for cataract surgery from 11 July 2005 to November 2012. For studying the prevalence of conjunctival bacteria and clinical characteristics in the patients' preoperative examination, those under 18 years and those with cataract surgery combined with other eye surgeries were excluded. Data from the first preoperative examination of the remaining patients were selected. Clinical data were extracted from the database generated in the evaluation made for anesthetic purposes, and the microbiological data from the laboratory database. Both bases were linked through a patient history code. A comparison was made between the prevalence of conjunctival bacteria and clinical characteristics in allergic and non-allergic patients.

Results: From 12,409 adults selected for the bacteriological study, 862 (6.96%) were allergic to β -lactams; their mean age (74.45 years) was higher than those who were non-allergic ($p = .005$). The proportion of women (71.4%) in the allergic patient group was much higher than that of men. The prevalence of pathogenic bacteria (especially *Bacillus* spp and *Pseudomonas aeruginosa*), lung disease and heart failure, was higher in allergic patients.

Conclusions: The prevalence of allergy to β -lactams in this study is within the range described in other populations. The higher prevalence of pathogenic bacteria and the predominance of women in those allergic to β -lactams are useful data to guide their surgical prophylaxis.

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Alergia a antibióticos β -lactámicos en cirugía de cataratas. Prevalencia y características preoperatorias de los pacientes alérgicos

R E S U M E N

Palabras clave:

Alergia a β -lactámicos
Prevalencia de alergia
Alergia a cefuroxima
Cirugía de cataratas
Profilaxis quirúrgica
Profilaxis intracameral
Prevalencia del asma

Objetivo: Describir la proporción de pacientes alérgicos a antibióticos β -lactámicos y su flora conjuntival entre los admitidos a cirugía de cataratas en nuestro entorno.

Método: Estudio retrospectivo transversal de prevalencia de pacientes alérgicos a β -lactámicos admitidos consecutivamente a cirugía de cataratas del 11 de julio de 2005 al 13 de noviembre de 2012. Para estudiar la prevalencia de bacterias conjuntivales y de características clínicas en el examen preoperatorio de los pacientes se excluyeron los menores de 18 años y aquellos con operaciones de cataratas combinadas con otras cirugías oculares, seleccionando los datos del primer preoperatorio de los pacientes restantes. Los datos clínicos se extrajeron de la base de datos generada en la consulta de evaluación para anestesia, y los microbiológicos de la base de datos del laboratorio. Ambas bases se vincularon mediante el código de historia clínica. Se comparó la prevalencia de bacterias conjuntivales y de características clínicas entre alérgicos y no-alérgicos.

Resultados: De 12.409 adultos seleccionados para estudio bacteriano, 862 (6,96%) eran alérgicos a β -lactámicos, su edad media era de 74,45 años, superior a la de los no-alérgicos ($p=0,005$). En los alérgicos la proporción de mujeres (71,4%) fue muy superior a la de hombres. La prevalencia de bacterias patógenas (especialmente *Bacillus* spp. y *Pseudomonas aeruginosa*), enfermedades pulmonares e insuficiencia cardiaca fue mayor en los alérgicos.

Conclusiones: La prevalencia de alérgicos a β -lactámicos de este estudio está comprendida en el rango descrito en otras poblaciones. La mayor prevalencia de bacterias patógenas y el predominio de mujeres en los alérgicos a β -lactámicos son datos útiles para pautar su profilaxis quirúrgica.

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Introduction

The incidence of post-surgery endophthalmitis (PE) after cataract surgery has decreased significantly in the past decade.¹⁻¹³ The majority of studies report that the diminished incidence is attributed to the introduction of surgical prophylaxis with intracameral cefuroxime at the end of the surgery.¹⁻⁷ In 1997, during the pioneering study on this prophylaxis,¹⁴ allergy to cefuroxime was researched in 5813 patients operated on for cataracts in Sweden, with the result that only 0.05% turned out to be allergic. This result matched the description of the smaller proportion of allergies for this antibiotic and with low rates of crossed allergy reactions of cefuroxime with other β -lactamic antibiotics.¹⁵⁻²⁰ However, a very severe anaphylactic reaction was described in 2003 after intracameral injection of 1 mg cefuroxime at the end of the cataract surgery in a patient who was allergic to ampicillin.²¹ A subsequent study on the Spanish population³ described that 15% of patients operated for cataracts who were allergic to β -lactamic antibiotics were also allergic to cefuroxime. However, the prevalence of allergy to cefuroxime or other β -lactamic was not provided. Recently, another case of severe anaphylaxis after intracameral cefuroxime prophylaxis was described in a patient allergic to β -lactamics but not to cefuroxime.²²

Even though there are very few publications reporting anaphylaxis due to intracameral cefuroxime, the recommendation of the *European Society of Cataracts and Refractive Surgeons* (ESCRS) to avoid said prophylaxis for patients who are allergic to β -lactamic being intervened for cataracts²³ seems

convenient. The prevalence of said allergy in the cataract surgery population is highly variable (from 0.05 to 16%) in the small number of analyzed studies^{7,13,14} probably due to the availability and use of antibiotics in different countries. In the geographical area of the authors this prevalence is unknown. For this reason, the objective of this study is to determine the proportion of patients who are allergic to β -lactamic antibiotics in our health region and the prevalence of conjunctival bacteria of said patients in order to assess the adequacy of alternative treatments for intracameral cefuroxime.

Subjects, materials and methods

Study design

A transversal retrospective study which included all the patients admitted consecutively to cataract surgery from July 11, 2005 to November 13, 2012. Said patients underwent pre-surgery assessments comprising basic blood analysis and chest X-ray and, between one and 3 weeks prior to surgery and in coincident dates, microbiological analysis of conjunctival bacteria was carried out together with assessment for anesthesia. Said assessments included a number of predetermined questions on the diseases the patient had been diagnosed with, the medication taken during that period and any known allergies. The only allergies to β -lactamic taken into account were documented or where the patient described highly suggestive reactions. All the data were systematically recorded in Access Microsoft Office 2003 database

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