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Objective evaluation of applying eye drops by elderly patients☆

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ABSTRACT

Objective: To objectively evaluate the ability and skills of patients older than 65 years to successfully administer a topical ocular eye drop.
Methods: A prospective study was conducted on a group of 25 patients with a diagnosis of dry eye or glaucoma, undergoing daily treatment with eye drops for at least one year. The procedure was recorded with a video camera at the time of the application.
Results: Of the total, 64% were diagnosed with glaucoma and 36% with dry eye. Almost half (44%) needed a single attempt to apply the drop, and 56% required 2 attempts. In terms of the number of eye drops applied, 52% managed with a single drop, 16% 2 drops, 12% 3 drops, and 20% 4 or more eye drops. Areas where the eye drop was deposited in the first attempt was 32% into the conjunctival sac, 32% on the outer corner of the eye, 8% in the inner angle, 8% in the nose, 12% on the cheek, 8% in other areas.
Conclusions: Self-administration of eye drops by the elderly is a complex activity that can have an effect on the expected results.

Evaluación objetiva de la aplicación de colirios en personas mayores de 65 años

Palabras clave:
Colirios
Glaucoma
Ojo seco
Cumplimento terapéutico
Senectud

RESUMEN

Objetivo: Evaluar las habilidades y destrezas de los pacientes mayores de 65 años en el momento de instilarse un tratamiento ocular en forma de colirio.
Métodos: Se realizó un estudio prospectivo sobre un grupo de 25 pacientes afectos de ojo seco o de glaucoma en tratamiento diario con gotas con, por lo menos, un año de evolución a los que procedimos a grabar con una cámara de vídeo en el momento de la instilación.
Resultados: Un 64% del total estaban diagnosticados de glaucoma y un 36% de ojo seco. Un 44% necesitaron un único intento para aplicarse la gota y un 56%, dos intentos. En cuanto al número de gotas instiladas, un 52% se instilaba una única gota, un 16% dos gotas,

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un 12% 3 gotas y un 20% cuatro o más gotas. Las zonas donde se depositó la gota en el primer intento fue en un 32% en el saco conjuntival, en un 32% en el ángulo externo del ojo, en un 8% en el ángulo interno, en un 8% en la nariz, en un 12% en la mejilla y en un 8% en otras zonas.

Conclusiones: La autoadministración de colirios en la población de la tercera edad se presenta como una actividad compleja que puede modificar los resultados esperados.

Introduction

One of the effects of aging is a progressive reduction of psychomotor skills as a consequence of physical and cognitive deterioration, the appearance of various types of chronic diseases or psychosocial changes that prevent or inhibit the execution of numerous daily activities.

In a study carried out in Cuba, Pérez and García[1] observed that 69.6% of individuals over 60 have at least one chronic disease, while 13.9% exhibited some sense organ alteration which inhibited the ability to carry out actions requiring a certain degree of dexterity and skill. In the USA, data published in 1998 demonstrated that 30–40% of people over 85 exhibited some psychomotor or cognitive dysfunction. The most frequently altered cognitive functions are short, medium or long term memory, language areas, manual skills and brain functions for resolving problems.[2]

Together with eyesight, some of the said skills play a very important role in meeting the 6 steps recommended by the General Counsel of Pharmaceutical Societies of Spain for adequate administration of eye drops.[3] These are: washing of hands, reclining the head backward, slightly pressing the lower eyelid downward, applying the drop in the conjunctival sac, closing the eye and slightly pressing the lacrimal duct a few seconds and, if a concurrent treatment has been prescribed, wait 5 min between both.

It must be taken into account that said maneuvers must be executed with eye drops contained in small dispensers which require adequate orientation, approach and a given amount of pressure. Accordingly and considering that the majority of chronic treatments we prescribe are for the elderly, we should take into account when prescribing eye drops the difficulty our patients may experience for adequately applying said eye drops on the ocular surface.

Severe dry eye and mainly glaucoma are 2 diseases which require prolonged and meticulous treatment to preserve in some cases the integrity of vision.[4] Due to the progressive increase of life expectancy, these 2 diseases are increasing in prevalence as attested by the numerous products available in the pharmaceutical market. For instance, glaucoma currently accounts for 6.7–21% of causes of blindness.[5] In addition, approximately 5% of the adult population requires medical attention due to dry eye discomfort and 30% experiences symptoms in ordinary situations such as air conditioning environments, use of contact lenses, medication and wind.[6]

Psychomotor skills and vision are important for self-administering drugs on the ocular surface. Very few references have been found on the efficiency of eye drop application in the elderly. This study is presented with the purpose of assessing the skills and abilities of patients over 65 for self-administering eye drops on their ocular surface.

Materials and methods

A prospective study in the external practices of the Hospital Comarcal de Mora (Mora d'Ebre, Tarragona, Spain) with a group of 25 patients over 65 years of age who were recorded on a video camera when self-administering eye drops.

The patients selected for the study had to fulfill the following conditions: visual acuity above 0.5, adequate binocular vision and using eye drops on a daily frequency and with more than one year of evolution. Patients with monocular vision, low psychomotor dexterity in upper limbs, dementia and those recently diagnosed who required treatment with eye drops were discarded from the study. Patients meeting said criteria were those exhibiting chronic diseases such as glaucoma or dry eye and accordingly these patients were admitted in the study.

The research protocol complied with the principles of the Helsinki Declaration and was approved by the Ethics Committee of the San Juan University Hospital of Reus. All patients signed an informed consent and authorized the use of their images for presenting the study.

After informing patients on the innocuous nature of the test, they were asked to apply one drop in the eyes in the same way they did it at home using similar dispensers containing a sterile solution of artificial tears without any active principles. The operation was recorded, emphasizing the application technique and the dynamics of the drop when making contact with the eye.

Two different types of available artificial tears were used, one in a single dose dispenser (Acuolens, Alcon SA, Kayersberg, France) and another in a multidose 5 ml bottle (Systane, Alcon SA, Hünenberg, Switzerland) depending on the type of dispenser used by patients on a daily basis.

Subsequently, the patient was taken to a hospital room equipped with washbasin, hand soap and paper towels. Two different types of chairs were offered in order to simulate as closely as possible the usual home context in which the eye drops were applied.

When the patient began the instillation procedure, a video camera (Everio Dock, GZ-MG365HE, JVC Technology GmbH, Friedberg, Germany) located at a distance of about 1 m began to record on automatic video mode. Only one researcher was in charge of the recordings and the interpretation of results.

The following variables were taken during the recordings (Table 1): use of a mirror, previous washing of hands, dispenser contact with ocular globe or eyelid, patient position