Predictive clinical factors for ocular dryness in patients admitted to the Intensive Care Unit*

Fatores clínicos preditores para o ressecamento ocular em pacientes internados na Unidade de Terapia Intensiva

Factores clínicos predictores de la resección ocular en pacientes ingresados en Unidad de Cuidados Intensivos

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ABSTRACT

Objective: To evaluate the predictive clinical factors for ocular dryness and for the nursing diagnosis Risk for dry eye in the ocular surface of hospitalized adult patients in an intensive care unit. **Method:** A cross-sectional study was conducted between January and July 2016, with 206 patients (412 eyes). An inference about the presence of the diagnosis in the evaluated patients was performed by diagnostic nurses. The descriptive and inferential statistics subsidized the data analysis. **Results:** 47.6% of the patients presented Risk for dry eye, and 52.4% were already diagnosed with ocular dryness. Statistical differences between the ocular dryness diagnosis in the right eye with hyperemia, mucous secretion, eyelid edema and lagophthalmia were identified. In addition, statistical differences were observed between hyperemia and eyelid edema with Risk for dry eye in the left eye and with the nursing diagnosis Risk for dry eye. **Conclusion:** Hyperemia, mucous secretion, eyelid edema and lagophthalmia are the predictive clinical factors for the nursing diagnosis Risk for dry eye and also of ocular dryness in the intensive care unit environment which deserve special attention in the preventive evaluation.

DESCRIPTORS

Nursing Diagnosis; Dry Eye Syndromes; Eye Health; Intensive Care Units.

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INTRODUCTION

Intensive Care Unit (ICU) patients are treated with specific therapies, present critical clinical situations and require multiple medications, ventilatory support and other equipment to maintain vital parameters, which predispose them to developing ocular dryness, dry eye and which may progress to vision loss[1-3].

Studies have identified an important frequency of ocular dryness in patients in order to contextualize this problem in ICUs[4-6]. When considering that 80% of visual deficiency causes are preventable or curative, an ocular evaluation in the ICU is essential to direct risk identification, to implement preventive nursing interventions, to monitor indicators and to provide safe care[7].

Dry eye or dry keratoconjunctivitis are terms used to refer to various conditions and diseases caused due to inadequate moisture and lubrication in the eye. Such conditions are characterized by a loss of homeostasis of the tear film triggered by dryness of the ocular surface, which is evidenced by ocular signs and symptoms such as burning, foreign body sensation, photophobia, hyperemia and visual acuity disorders. Therefore, the instability and hyperosmolarity of the tear film, inflammation and ocular surface damage, and neurosensorial abnormalities exert etiological functions[2-4,8].

Ocular dryness is the undesirable human response resulting from hyposecretion/increased lacrimal evaporation, considered as a defining attribute of dry eye, which is under the responsibility of nursing. Identifying ocular dryness can be performed with an insufficient tear volume test allied to one or more clinical signs and symptoms[1,8].

In the NANDA-International (NANDA-I) classification, the Nursing Diagnosis (ND) Risk for dry eye (00219) is defined as susceptibility to ocular discomfort or damage to the cornea and conjunctiva, resulting from a quantitative and/or qualitative deficiency in the tear film responsible for eye hydration, which can compromise health. Its risk factors include air conditioning, insufficient knowledge of modifiable factors, vitamin A deficiency, excessive wind, sunlight exposure, caffeine intake, prolonged reading, air pollution, smoking, and low humidity[9].

Aging, history of allergy, female gender and wearing contact lenses are characteristics of patients considered to be included in the risk population. The associated conditions described are: hormonal change, ocular surface damage, autoimmune disease, neurological lesion with sensory or motor reflex loss, treatment regimen and mechanical ventilation[9].

Considered to be of minor complexity, ocular care in ICUs is often delayed by the inexperience or lack of knowledge of the multiprofessional team regarding its importance and respective actions to be implemented. In this sense, specific actions need to be recognized and incorporated to prevent injuries, discomfort, suffering and disabling conditions, as well as to reduce costs of the health system, which may happen due to the occurrence of ocular dryness and other subsequent changes[10-11].

Thus, in line with the World Health Organization's (WHO) Action Plan on ocular health 2014-2019[7], the objective of the present study was to evaluate the predictive clinical factors for ocular dryness and for the nursing diagnosis Risk for dry eye on the ocular surface of hospitalized adult patients in an intensive care unit.

METHOD

STUDY DESIGN

This is a quantitative, cross-sectional, descriptive and analytical, individuated and observational study. Therefore, the design was based on the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) initiative.

SCENARIO

The study was developed in an adult ICU of a public university hospital, located in Northeast Brazil.

SELECTION CRITERIA

The inclusion criteria for selecting participants were: patients with ICU stay longer than 24 hours, age equal to or greater than 18 years. Exclusion criteria were: use of topical ocular medication, patients with agitation or who presented clinical emergency situations during data collection.

SAMPLE DEFINITION

The sample was established using the sample calculation for finite population: n = $Z_\alpha 2.pqN/[Z_\alpha 2.p.q+(N-1).e^2]$, where n = sample size, Z_α = confidence coefficient, p = expected proportion, q = prevalence complement (1-p), N = population size, and = sample error. A patient population (N) of 925 patients, according to data from the computerized medical records system, a coefficient of confidence (Z_α) of 95% (1.96), sample error (e) of 5%, and the proportion expected (p) approximation of 22%, estimated after a pilot study. Therefore, the final sample consisted of 206 patients (412 eyes).

DATA COLLECTION

Data were collected between January and July of 2016 through an instrument with sociodemographic and clinical variables for ocular evaluation, as well as risk factors (RF), at-risk population and associated conditions for the ND Risk for dry eye. The data collection was performed by a previously trained team for clinical evaluation and composed of nurses and undergraduate nursing students in the last year of the course, members of the Studies and Research in Clinical Nursing Group at the Universidade Federal do Rio Grande do Norte (*NEPEC/UFRN*). The training lasted 8 hours and was conducted by the team of study researchers. The instrument and the evaluation technique of each variable were approached in a thorough manner during the technical exercise of the team in order

to avoid measurement biases. It should be noted that a simulation of the instrument application with actors was also performed to verify the collection ability and to provide possible adjustments.

After the end of the training, the collection team was submitted to theoretical and practical evaluations. The theoretical evaluation covered 10 questions with a total score of 10 points. The elaborated objective and subjective questions aimed to relate the training topics with the knowledge of each participant of the team. Regarding the practical evaluation, this occurred during the training and in the location of data collection under the guidance of the researcher and also with a score of 10 points. After the theoretical and practical evaluations, the participants of the team that obtained averages above 7.0 from the arithmetic mean of the tests were considered suitable to participate in the study data collection.

The inference to the presence of the ND Risk for dry eye and the undesirable human response of ocular dryness was performed by two diagnostic nurse members of the NEPEC/UFRN who did not participate in the data collection. The criteria for nurses' participation were: research about diagnosis, interventions or nursing results on the theme or with dry eye or ocular dryness, specialization/residency in ICU or teaching or clinical experience of at least 6 months in an ICU. In case of disagreement, they were resolved by consensus.

The reasoning process for inferring the ND Risk for dry eye was standardized through pattern recognition[12]. Considering that the diagnosis of ocular surface changes is based on signs, symptoms and clinical history of the patient associated with some quantitative and qualitative tests, and that not all patients in the study could report symptoms due to the clinical situation[13], the inference for dry eye was standardized and adapted from the recommendation of the Dry Eye Workshop – DEWS II, namely: an insufficient volume test (Schirmer test <10 mm) associated to a positive clinical sign (ocular hyperaemia and/or presence of mucous secretion)[1,8].

The original Schirmer's test (Schirmer I) enables measuring total tear secretion (basal estimate plus a reflex assessment). For this purpose, Standard Whatman 41 filter paper tapes of 5 mm x 35 mm with the initial 5 mm being curved are used. The tape is placed on the lower eyelid between the middle third and the outer third. The reading is performed after five minutes with the eye closed, in which the quantity in millimeters of the paper wetting is measured. Normal values are considered above 10 millimeters[8,11].

Data analysis and processing

The data were organized and stored in a database in the Statistical Package for Social Science (SPSS), version 22.0 for testing. The database was constructed by double entry by two teams, with a subsequent conference to ensure reliability in the data transcription.

The frequencies, the distribution center measures and their variabilities for the descriptive analysis were considered. The Shapiro-Wilk test was used to verify the data normality, confirmed by individualized analyzes of asymmetry, kurtosis, histogram, Quantil-Quantil (Q-Q Plot) and Boxplot charts, according to literature recommendations for sample size[14]. The Pearson Chi-square test was used for associative measures of the nominal categorical data, and the Fisher's test was applied when the expected frequencies were less than five. The magnitude of the association was verified by the prevalence ratio (PR) at a confidence interval (CI) of 95%. A significance level of 95% (p≤0.05) was adopted in all tests.

Ethical aspects

This study obtained a favorable opinion from the Research Ethics Committee in 2014 under number 918.510. The recommendations of Resolution No. 466/12 of the National Health Council on human research were obeyed.

RESULTS

Of the 206 patients, 52.4% were male with a mean age of 58.41 (SD = 14.98) years, 39.8% had incomplete elementary education, 43.3% were retired, and 88.2% practiced some religion. The family income obtained a median of R$1,760.00 (BRL), and the patients had a mean of three family dependents. Of the comorbidities, 59.7% had systemic arterial hypertension, and 31.6% had diabetes mellitus. From the total sample, 47.6% of the patients presented Risk for dry eye, and 52.4% were already diagnosed with ocular dryness.

Regarding the blink reflex evaluation, 49.52% of the patients had a mean value above five times per minute, 48.95% less than 5 times, and 1.94% equal to five times per minute. In the anterior segment of the right eye (RE) evaluation, 81.55% of the patients had complete eyelid closure, 7.77% had 1/3 of the cornea exposed (iris and pupil), and 5.34% had half of the cornea (iris) or conjunctiva exposed (visible sclera only). In the left eye (LE), 78.65% presented complete eyelid closure, followed by 10.19% with 1/3 of the cornea exposed, 4.85% with the conjunctiva exposed, 3.88% presented half of the cornea exposed, and 2.43% presented a fully exposed cornea.

According to the other evaluation data of the ocular surface for each side, 58.74% of the patients had ocular hyperemia in the RE, and 55.34% in the LE; 21.36% had mucous secretion in the RE, while 15.53% had mucous secretion in the LE. In addition, 22.33% of the participants developed eyelid edema in the RE, and 20.87% in the LE; 32.04% presented conjunctival chemosis in the RE, and 30.10% in the LE.

The tear volume evaluated by the Schirmer test and classified as insufficient (<10 mm) presented a percentage of 65.53% in the RE and 69.90% in the LE. When conducting a general analysis, 78.64% patients presented an insufficient Schirmer test result. Table 1 shows the relationships between ocular assessments and the clinical diagnosis of dry eye in the RE.

Table 1 – Relationship between ocular evaluations and clinical diagnosis of ocular dryness in the right eye – Natal, RN, Brazil, 2018.

Variables		Right ocular dryness		Total	p-value	PR [CI95%]
		Yes	No			
Blink reflex (times/min)	< 5	43.00% (n=43)	57.00% (n=57)	100.00% (n=100)		
	= 5	50.00% (n=2)	50.00% (n=2)	100.00% (n=4)	0.962(1)	---
	> 5	43.14% (n=44)	56.86% (n=58)	100.00% (n=102)		
Hyperemia	Yes	57.36% (n=74)	42.64% (n=55)	100.00% (n=129)	0.000(1)	2.94 [1.83; 4.75]
	No	19.48% (n=15)	80.52% (n=62)	100.00% (n=77)		
Mucous secretion	Yes	55.32% (n=26)	44.68% (n=21)	100.00% (n=47)	0.056(1)	1.40 [1.01; 1.92]
	No	39.62% (n=63)	60.38% (n=96)	100.00% (n=159)		
Eyelid edema	Yes	57.45% (n=27)	42.55% (n=20)	100.00% (n=47)	0.025(1)	1.47 [1.07; 2.02]
	No	38.99% (n=62)	61.01% (n=97)	100.00% (n=159)		
Conjunctival chemosis	Yes	46.38% (n=32)	53.62% (n=37)	100.00% (n=69)	0.514(1)	1.11 [0.81; 1.54]
	No	41.61% (n=57)	58.39% (n=80)	100.00% (n=137)		
Lagophthalmos	Yes	60.47% (n=26)	39.53% (n=17)	100.00% (n=43)	0.010(1)	1.56 [1.15; 4.83]
	No	38.65% (n=63)	61.35% (n=100)	100.00% (n=163)		

(1) – Pearson chi-square test; PR – Prevalence ratio.

In the ocular evaluations with the clinical diagnosis of ocular dryness in the RE, at a significance level of 5%, there was evidence of a statistical difference between the diagnosis of right ocular dryness with hyperemia, mucous secretion, eyelid edema and lagophthalmia. Regarding the prevalence ratio, the occurrence of right ocular dryness is 2.94 times higher in the presence of hyperemia, 40% higher in the presence of mucous secretion, 47% higher in the presence of eyelid edema and 56% higher in the presence of lagophthalmos when compared to those that did not present these characteristics. Table 2 shows the relationships between ocular evaluations and the clinical diagnosis ocular dryness when only LE was observed.

Table 2 – Relationship between ocular evaluations and clinical diagnosis of ocular dryness in the left eye – Natal, RN, Brazil, 2018.

Variables		Left ocular dryness		Total	p-value	PR [CI95%]
		Yes	No			
Blink reflex (times/min)	< 5	43.00% (n=43)	57.00% (n=57)	100.00% (n=100)		
	= 5	50.00% (n=2)	50.00% (n=2)	100.00% (n=4)	0.962(1)	---
	> 5	43.14% (n=44)	56.86% (n=58)	100.00% (n=102)		
Hyperemia	Yes	58.14% (n=75)	41.86% (n=54)	100.00% (n=129)	0.000(1)	3.20 [1.95; 5.25]
	No	18.18% (n=14)	81.82% (n=63)	100.00% (n=77)		
Mucous secretion	Yes	51.06% (n=24)	48.94% (n=23)	100.00% (n=47)	0.216(1)	1.24 [0.89; 1.75]
	No	40.88% (n=65)	59.12% (n=94)	100.00% (n=159)		
Eyelid edema	Yes	59.57% (n=28)	40.43% (n=19)	100.00% (n=47)	0.010(1)	1.55 [1.14; 2.11]
	No	38.36% (n=61)	61.64% (n=98)	100.00% (n=159)		
Conjunctival chemosis	Yes	44.93% (n=31)	55.07% (n=38)	100.00% (n=69)	0.514(1)	1.11 [0.81; 1.54]
	No	42.34% (n=58)	57.66% (n=79)	100.00% (n=137)		
Lagophthalmos	Yes	46.51% (n=20)	53.49% (n=23)	100.00% (n=43)	0.623(1)	1.10 [0.76; 1.59]
	No	42.33% (n=69)	57.67% (n=94)	100.00% (n=163)		

– Pearson chi-square test; PR – Prevalence ratio.

Statistical differences were observed regarding the LE ocular evaluations between the diagnosis of left ocular dryness, hyperemia and eyelid edema. The prevalence ratio shows that the occurrence of left ocular dryness is 3.2 times greater in the presence of hyperemia and 55% higher in the presence of eyelid edema when compared to those which did not present these characteristics. Table 3 shows the relationships between ocular evaluations and the ND Risk for dry eye.

Table 3 – Relationship between ocular evaluations and the Nursing Diagnosis Risk for dry eye – Natal, RN, Brazil, 2018.

Variables		Risk for dry eye		Total	p-value	PR [CI95%]
		Yes	No			
Blink reflex (times/min)	< 5	46.00% (n=46)	54.00% (n=54)	100.00% (n=100)		
	= 5	50.00% (n=2)	50.00% (n=2)	100.00% (n=4)	0.907[1]	---
	> 5	49.02% (n=50)	50.98% (n=52)	100.00% (n=102)		
Hyperemia	Yes	31.01% (n=40)	68.99% (n=89)	100.00% (n=129)	0.000[1]	0.41 [0.31; 0.55]
	No	75.32% (n=55)	24.68% (n=19)	100.00% (n=77)		
Mucous secretion	Yes	38.30% (n=18)	61.70% (n=29)	100.00% (n=47)	0.147[1]	0.76 [0.51; 1.13]
	No	50.31% (n=80)	49.69% (n=79)	100.00% (n=159)		
Eyelid edema	Yes	25.53% (n=12)	74.47% (n=35)	100.00% (n=47)	0.001[1]	0.47 [0.28; 0.78]
	No	54.09% (n=86)	45.91% (n=73)	100.00% (n=159)		
Conjunctival chemosis	Yes	40.58% (n=28)	59.42% (n=41)	100.00% (n=69)	0.154[1]	0.79 [0.57; 1.10]
	No	51.09% (n=70)	48.91% (n=67)	100.00% (n=137)		
Lagophthalmos	Yes	37.21% (n=16)	62.79% (n=27)	100.00% (n=43)	0.126[1]	0.74 [0.49; 1.12]
	No	50.31% (n=82)	49.69% (n=81)	100.00% (n=163)		

– Pearson chi-square test; PR – Prevalence ratio.

Regarding the ocular evaluations with the ND Risk for dry eye, at a significance level of 5%, statistical differences were demonstrated between the ND with clinical factors hyperemia and eyelid edema. When analyzing the prevalence ratio, it is observed that the occurrence of the ND Risk for dry eye is 41% lower in the presence of hyperemia and 47% lower in the presence of eyelid edema.

The most prevalent risk factor for ND Risk for dry eye was air conditioning (100%). There was evidence of aging for the population at risk, which was 50.97% (age equal to or greater than 60 years), and 47.60% female patients. According to the associated conditions, 52.43% used mechanical ventilation, and 50.00% presented neurological lesions with sensory or motor reflexes loss.

DISCUSSION

Diagnosing undesirable human responses and vulnerabilities presents important relevance in planning nursing goals and actions, for which it is the nurse's responsibility to correctly diagnose. Identifying clinical data in evaluating the ocular surface of patients with ocular dryness and with the ND Risk for dry eye enables performing actions aimed at preventing consequent aggravations.

Regarding the prevalence of the outcomes in the analysis per patient, 47.6% had the ND under study, and 52.4% had a clinical diagnosis of dry eye. These results corroborate those of other studies which evaluated the presence of ocular alterations from dry eye with values between 32.2% and 53.0%[4-6].

The process of ocular changes can be initiated by a reduction in the quantity and/or quality of tears, mainly characterized by dryness of the eye surface. In this sense, it was identified that the majority (78.64%) of patients in the present study presented insufficient Schirmer's test result (tear volume less than 10 mm). This problem can be

identified and prevented by nurses, who present nursing interventions aimed at preventing ocular dryness and reducing potential complications[2,6].

The intervention Dry Eye Prevention (1350) is available in the Nursing Intervention Classification (NIC) and features a number of interventions to be used to detect early ocular dryness and/or to prevent individuals at risk. In the ICU context, the intervention includes activities such as monitoring signs and symptoms to identify personal characteristics and environmental factors which may increase the potential for ocular dryness, monitoring the blink reflex, identifying the presence of lagophthalmia, monitoring the amount of tears produced using specific tests, using lubricants, and covering the eyes with effective devices. In patients with mechanical ventilation, ensuring that the endotracheal fixation is not too tight and monitoring ventilator mode and pressure[15].

Hyperemia is defined as a signal resulting from the presence of dilated blood vessels in the conjunctiva[8], and is characterized by redness in the conjunctiva caused by insufficient functioning of the structures responsible for maintaining and lubricating the ocular surface. A study carried out in an ICU which evaluated the prevalence of ocular surface disorders in patients who remained in the ICU for more than 7 days identified the presence of hyperemia in 56.25% of the evaluated eyes[5].

Mucous secretion, especially in excess, is characterized by an increase in the conjunctival goblet gland activity and is due to an exacerbation of the drying process caused by ocular exposure as an inflammatory sign of the mucin producing glands, considered a late sign of the phenomenon. When present, it is found on the ocular surface with a whitish coloration, usually not very abundant and with filamentary characteristics resulting from an initial irritation, such as an instability of the tear film[16-17].

Edema is characterized by an accumulation of fluid in the intra or extracellular space and results from fluid extravasation into the interstitial spaces by means of capillaries or failure of the lymphatic system in order to return fluid from the interstitium to the blood[17-18]. Thus, eyelid edema may be examined by extravasation of liquids in the eyelid and may compromise the correct blinking function, in addition to causing pain and discomfort to the patient.

Lagophthalmos and a lack of spontaneous blinking reflex cause instability in the tear film. A reduction or lack of spontaneous reflex significantly limits the joint ability of eyelid closure and tear film in cleaning and removing microorganisms from the ocular surface[1]. Another study reports that a blinking number of less than five times per minute increases the chances of corneal changes arising from ocular surface dryness[19].

Lagophthalmos is the main predisposing factor for ocular surface diseases, including ocular dryness[17]. Incomplete eyelid closure results from decreased orbicularis muscle tone, with subsequent ocular surface exposure and increased tear film evaporation, thus leading to tear film instability and dry eye[19]. Cohort studies performed in the ICU environment highlight that lagophthalmos was identified as the main risk factor for ocular surface alterations[6,20].

In addition, it is important to complement that the right eye presented a more significant frequency of ocular disorders when compared to the left eye. It is believed that this happens because the right side of the patient is more manipulated during the procedures. Furthermore, when there was hyperemia and eyelid edema, there was a lower incidence of ND Risk for dry eye, since the patients who had these clinical signs already had a dry eye diagnosis and no longer the presence of susceptibility.

The limitations of the present study are due to the design used which does not enable knowing cause and effect relationships. Moreover, the fact that it was performed in a single clinical setting may limit generalizing the results to other settings.

However, the study results promote advances in the area of nursing/health in order to subsidize knowledge that is directed to care practice focused on vulnerabilities, undesirable human responses, and in addition influence the development of preventive and evaluative actions of ocular dryness in the ICU.

CONCLUSION

Based on the obtained results and considering the objective proposed in this study, it is concluded that hyperemia, mucous secretion, eyelid edema and lagophthalmos are significant clinical data for evaluating patients hospitalized in the ICU in assisting to predict dry eye as well as the Risk for dry eye. Identifying the clinical predictors will contribute to early detection and to prevent ocular dryness and other subsequent diseases.

RESUMO

Objetivo: Avaliar na superfície ocular de pacientes adultos internados em unidade de terapia intensiva os fatores clínicos preditores para o ressecamento ocular e para o diagnóstico de enfermagem Risco de ressecamento ocular. **Método:** Estudo transversal, realizado entre janeiro e julho de 2016, com 206 pacientes (412 olhos). A inferência quanto à presença do diagnóstico nos pacientes avaliados foi executada por enfermeiros diagnosticadores. A estatística descritiva e inferencial subsidiou a análise dos dados. **Resultados:** 47,6% dos pacientes apresentaram o Risco de ressecamento ocular, e 52,4% já estavam com o diagnóstico de ressecamento ocular. Foram identificadas diferenças estatísticas entre o diagnóstico de ressecamento ocular no olho direito com a hiperemia, secreção mucosa, edema palpebral e lagoftalmia. Além disso, observaram-se diferenças estatísticas entre a hiperemia e edema palpebral com o ressecamento ocular no olho esquerdo e com o diagnóstico de enfermagem Risco de ressecamento ocular. **Conclusão:** A hiperemia, secreção mucosa, edema palpebral e lagoftalmia são fatores clínicos preditores do diagnóstico de enfermagem de risco e também do ressecamento ocular no ambiente da unidade de terapia intensiva que merecem especial destaque na avaliação preventiva.

DESCRITORES

Diagnóstico de Enfermagem; Síndromes do Olho Seco; Saúde Ocular; Unidades de Terapia Intensiva.

RESUMEN

Objetivo: Evaluar en la superficie ocular de pacientes ingresados en unidad de cuidados intensivos los factores clínicos predictores de la resección ocular y del diagnóstico enfermero Riesgo de resección ocular. **Método:** Estudio transversal, llevado a cabo entre enero y julio de 2016, con 206 pacientes (412 ojos). La inferencia en cuanto a la presencia del diagnóstico en los pacientes evaluados fue realizada por enfermeros diagnosticadores. La estadística descriptiva e inferencial subsidió el análisis de los datos. **Resultados:** el 47,6% de los pacientes presentaron el Riesgo de resección ocular, y el 52,4% ya tenían el diagnóstico de resección ocular. Fueron identificadas diferencias estadísticas entre el diagnóstico de resección ocular en el ojo derecho con la hiperemia, secreción mucosa, edema palpebral y lagoftalmía. Además, se observaron diferencias estadísticas entre la hiperemia y el edema palpebral con la resección ocular en el ojo izquierdo y diagnóstico de enfermería Riesgo de resección ocular. **Conclusión:** La hiperemia, secreción mucosa, edema palpebral y lagoftalmia son factores clínicos predictores del diagnóstico de enfermería de riesgo y también de la resección ocular en el entorno de la unidad de cuidados intensivos, que merecen énfasis especial en la evaluación preventiva.

DESCRIPTORES

Diagnóstico de Enfermería; Sindromes de Ojo Seco; Salud Ocular; Unidades de Cuidados Intensivos.

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