



Evaluation of the Clinical Pattern of Limb Amputations in Patients with Electrical Burns During the Pandemic COVID-19

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Abstract: Burns caused by electricity, are devastating injuries, can cause loss of life, The epidemiological pattern of this type of injury increased during the covid-19 pandemic. The objective of this study was to evaluate the clinical pattern of limb amputation in patients with electrical burns treated at CENIAQ from March 2020 to February 2023 This is a prospective study of routine medical practice with convenience sampling, for 36 months. One of the epidemiological and social phenomena during the COVID-19 pandemic was the incorporation of personnel without adequate preparation for high-risk tasks, conditioning devastating injuries that required amputation of one or more limbs

Keywords: Limb amputation, Electrical Burn, COVID-19.

INTRODUCTION

Burns caused by electricity are devastating injuries, they can cause the loss of life and in those patients who survive this devastating injury it generates disability and important limitations, The epidemiological pattern of this type of injury increased during the covid-19 pandemic Electrical burns have psychological, functional, aesthetic and socioeconomic implications for the patient and their family (1). a second- or third-degree burn requires an exposure of at least 75 mA/mm (2). Due to the particular pathophysiology with which they evolve, their prognosis is uncertain (3,4) Many published studies describe the risk of amputations after electrical burns (5-7) It is reported in the world literature that the incidence of limb amputation in patients diagnosed with high-voltage electrical burn is approximately 28 to 30% in developed countries, while in underdeveloped countries the percentage can increase to 60% (8, 9, 10,11), Deciding not to carry out a radical treatment, i.e. amputation when necessary, will bring complications as consequences, starting with an infection until the death of the patient, that is why you must act with certainty and propose the best treatment to the patient when necessary.

MATERIAL AND METHODS

A retrospective study was carried out with the aim of evaluating the clinical pattern of limb amputation, in patients with electrical burns, a consecutive cohort of 63 patients with a diagnosis of electrical burn operated on in our institution between March 2020 and February 2023 convenience sampling was included, for 36 months. Inclusion criteria included patients who required lower limb amputation due to electrical burns. Patients outside the beginning

of the covid 19 pandemic were excluded. The variables recorded are demographic data, clinical data, burn mechanism, established surgical management, complications and long-term outcomes. This study follows the ethical principles of the Declaration of Helsinki and was approved by the ethics and research committee of our institution. Written informed consent was obtained from all participants, which explicitly authorized the use of their clinical data and photographic material for research and scientific publication purposes, guaranteeing at all times the confidentiality of their identity.

RESULTS

The study cohort was made up of 63 patients, 92.06% male patients, 7.9% female (FIG1). The average skin burn surface was 12.7 ± 37.8 %. The mean age was 34.5 years, which corresponds to the economically active population. Pediatric patients constituted 6.34%. The rates of COVID-19 infection in the group of patients did not represent a significant difference in the age groups, corresponding to 9.5% without this representing a factor that increased mortality. High voltage electrical burns constituted 78.5% (FIG 2). Electrical contact burn was the most common type, accounting for 94% of cases. The most frequent cause was work-related 79.8%. Fasciotomy was required in 39.6%, with an amputation rate of 34.9% (Fig 3) and those who required a secondary procedure correspond to 15.87% of all patients included in the study.

DISCUSSION

We analyzed the data of 63 patients diagnosed with electrical burns, who were hospitalized at the national center for burn research and care in the period from March 2020 to February 2023. The results of this study establish that approximately 92% of the patients who were treated in our institution with electrical burns are male and the remaining 8% female. Age ranged with an average of 34.5 years, which corresponded to the economically active population, A fact to highlight in our study is that the rates of infection by the covid 19 virus in the group of patients did not represent a significant difference in the age groups, corresponding to 9.5% without this representing a fact that increased mortality. We found in our statistical analysis that the most frequent cause was occupational with 79.8%, and approximately 1 in 3 patients required lower extremity amputation.

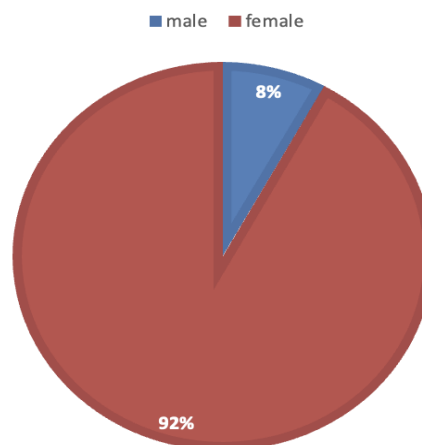


Figure 1: percentage of patients with electrical burns by gender

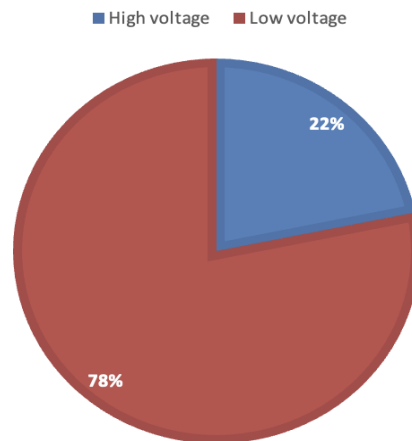


Figure 2: incidence of high voltage burns

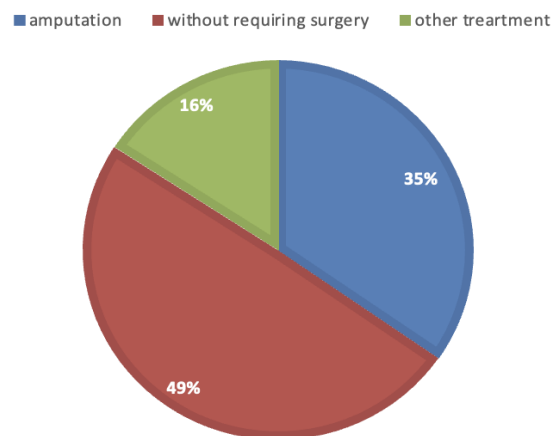


Figure 3: Average number of patients who required lower extremity amputation

CONCLUSION

All electrical burns are considered severe and should be given priority at the time of the first care provided by health personnel.

It is a fact that the probability of an amputation being performed depends on the type of voltage from which the patient suffers the burn.

Thus, as part of our main objectives was to document that the COVID-19 pandemic forced untrained people to perform high-risk work that caused them devastating injuries and required amputation of one or more limbs, the severity of our group of patients with COVID-19 infection were mostly classified as deep second burns, third and fourth degree, all these injuries bring with them a great burden of disability in the young adult population of productive age.

We can mention as a finding that infection by the COVID 19 virus did not increase mortality in our group of patients.

Finally, we conclude that an early functional aesthetic amputation is better to allow adequate recovery and that the patient can be ready for a prosthesis.

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