EPILEPSY AND BURN: EPIDEMIOLOGICAL AND CLINICAL ASPECTS. THE EXPERIENCE OF A MOROCCAN BURN UNIT

ÉPILEPSIE ET BRÛLURE: ASPECTS ÉPIDÉMIOLOGIQUE ET CLINIQUE. L'EXPÉRIENCE D'UN CTB MAROCAIN

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SUMMARY. Epilepsy is a chronic neurological disorder, affecting 0.5 to 1% of the general population. The association of epilepsy and burns constitutes a real public health problem. The aim of this article is to shed light on the epidemiological and clinical aspects of burned epileptics, the follow-up of their pathology, and the complications noted as well as the multidisciplinarity of their care involving a collaboration of neurologists, plastic surgeons, psychotherapists, physiotherapists and, especially, the entourage that plays a principal and primordial role in the prevention of the triggering of epileptic seizures, especially in places at risk of the occurrence of burn.

Keywords: epilepsy, burn, 3rd degree, sequelae, prevention

RÉSUMÉ. *L'épilepsie est une pathologie neurologique chronique touchant 0,5 à 1% de la population. Son association avec les brûlures pose un véritable problème de santé publique. Le but de ce travail est d'éclairer les aspects cliniques et épidémiologiques de cette association de pathologies, du suivi des patients, des complications observées et de l'aspect multidisciplinaire de leur prise en charge (neurologues, chirurgiens plasticiens, psychologues, rééducateurs). Il insiste sur le rôle primordial de l'entourage qui joue un rôle fondamental tant dans la prévention du déclenchement des crises que dans le contrôle de l'environnement du patient.*

Mots-clés*: épilepsie, brûlure, 3ème degré, séquelles, prévention*

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Introduction

Epilepsy is a chronic neurological disorder, affecting 0.5 to 1% of the general population.[1] The association of epilepsy and burns constitutes a real public health problem due to the difficulty of their management, requiring good medical compliance, regular follow-up, know-how on managing risk factors, and knowledge of the functional, aesthetic and psycho-social after-effects caused by the burn.

The aim of this article is to shed light on the epidemiological and clinical aspect of burned epileptics, the follow-up of their pathology, and the complications noted, as well as the multidisciplinarity of their care involving a collaboration of neurologists, plastic surgeons, psychotherapists and physiotherapists and, especially, the patient's entourage, which plays a principal and primordial role in the prevention of the triggering of epileptic seizures, especially in places at risk of the occurrence of burn.

Patients and methods

This article is a descriptive, retrospective study of 20 epileptic patients hospitalized in the Arrazi University Hospital Burn Unit during the period from January 2016 to December 2019. The collection of information used a datasheet with reference to the patients' files.

Results

Of the 20 files studied, 13 belonged to women (65%) with an average age of around 25 years; 40% were uneducated with an average to low social economic level, and 45% were beneficiaries of the social service RAMED.

The most frequent burn mechanism observed in our study was contact with a solid object (45%), 20% of which were due to loss of consciousness on an ember, followed by scald burns in 30% of cases, and burns due to a flame in 25% of cases.[2] All of these patients were burned at home: 65% in the kitchen following the triggering of their epileptic seizure at the time of the preparation of food and 35% in the bathhouse. All of these patients were alone at the time of the incident.

The average burned skin surface area was 14.5% deep in 90%[1,2] of the cases (*Fig. 1*), most frequently localized in the upper limb (42%) followed by the cephalic extremity and lower limb in 15% each.

Fig. 1 - At admission

The discovery of epilepsy followed the burn in 10% of all patients in the study, 35% were poorly observed while 55% of them said they were well followed. 10% of the patients had a history of burns following a previous epileptic seizure.

On admission, all patients had a burns removal: only 10% of patients had an escharotomy and 13% had a tarsorrhaphy. We did not perform any early excision grafts.

During their hospitalization, only 7% healed spontaneously without sequelae: the rest of the patients had recourse to covering their loss of substance by skin grafts (*Figs. 2-3)*.

The evolution of the patients was marked by retractile sequelae in 11% of the transplanted patients who benefited from a graft release, 33% had recourse to a treatment of the ocular ectropion, 6%

Fig. 2 - Proliferative phase

Fig. 3 - Skin graft

benefited from a treatment of the labial ectropion, 3% were injected with platelet-rich plasma, and 3% benefited from lipofilling (*Fig. 4*).

Fig. 4 - One month after surgery

All patients were seen during their hospitalizations by psychiatrists and neurologists who adjusted their treatment dose. 65% continued neurological and psychiatric follow-up after discharge.

Discussion

There are many well-identified causal relationships between burns and epilepsy.[3,4] The frequency and severity of epileptic seizures as well as the female sex[4,5] are at the origin of this relationship.

The triggering of the seizure can be explained by the light stimulation caused by the flames or the confined and hot atmosphere of the kitchens and the baths, hence the high frequency of the attack in young women, who often overstay in the kitchen during the preparation of meals or during a prolonged shower.

The burn is often deep because the duration of the tonic-clonic seizure is usually 2±5 minutes, during which time deep burns may occur if contact is made with a heat source, especially since the patient is often alone during seizures.

The loss of substance resulting from the deep burn does not heal spontaneously, making the management of the pathology difficult, passing from the coverage of the loss of substance to the after-effects that are difficult to manage, including skin retractions.

Burn is one of the most disabling injuries, responsible for morphological changes and psychological and functional disorders. Most of the injuries suffered by epileptics are better avoided by better control of seizures, especially as 45% are not or are poorly followed.

The association of these two pathologies requires a rigorous and close follow-up by a team made up of plastic surgeons treating the burn, neurologists who must adapt the treatment doses and remind the patients to move away from all sources of stimulation of their seizures, as well as psychiatric care which becomes compulsory for them to know how to accept the after-effects of burns, without forgetting the primordial and indispensable role of the patient's entourage, which must take care that a second similar incident does not occur again.

Conclusion

Burns in epileptics remain a public health problem in developing countries, requiring a heavy and multidisciplinary management. The difficulty of managing these patients means attention must be focused on prevention strategies that involve the patient's entourage by educating them to never leave an epileptic alone near a thermal source or in an environment at risk, and ensure the patient adheres to the anticonvulsant treatment and attends regular follow-up with the attending physician.

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