

CO11-002-e

Prophylaxis of heterotopic ossifications: State of the art

F.C. Boyer^{a,*}, A. Rapin^b, L. Percebois-Macadré^c, V. Bombart^b, M. Toussaint^b, J.-M. Coulon^c, E. Regrain^c, G. Belassian^c, C. Herbin^c, A. Chéné^c, F. Kolangourou^c

^aEA3797, pôle autonomie et santé, université Reims-Champagne-Ardenne, hôpital Sébastopol, CHU de Reims, 48, rue de Sébastopol, 51092 Reims, France

^bEA3797, pôle autonomie et santé, université Reims-Champagne-Ardenne, hôpital Sébastopol, CHU Reims, France

^cUnités de MPR, pôle Autonomie et Santé, hôpital Sébastopol, CHU Reims, France

*Corresponding author.

E-mail address: fboyer@chu-reims.fr.

Keywords: Heterotopic ossifications; Head injuries; Spinal cord injuries; Hip arthroplasty; Acetabular fractures; Prevention; Pharmacological treatment; Non-pharmacological treatments

Introduction.– Heterotopic ossifications (HO) occur in specific pathological conditions: spinal cord injuries (10–53%) and brain injuries (11–73%), hip joint replacement or hip acetabular fractures (5–90%) and severe burn. They are defined as the formation of a lamellar bone in soft tissues typically par-articular. Is it possible to avoid or reduce occurred HO with therapeutic procedures?

Method.– Analysis of levels of evidence studying preventive interventions of heterotopic ossification occurrences in these pathological conditions.

Results.– Four literature reviews published between 2009 and 2011 were analyzed and criticized. We focused on prevention studies attempting to reduce the heterotopic ossification risk occurrences in PMR specific conditions.

Discussion.– Pharmacological therapies or non-pharmacological therapies seek to avoid the formation of functionally disabling HO (Brooker classification) in three different diseases. Various studies have been conducted to assess the HO primary or secondary prevention in spinal cord injuries. Rofecoxib, indomethacin, etidronate, pulsed electromagnetic fields or radiation therapy reduces the risk of HO occurrence (randomized controlled trials). Warfarin could reduce risk (retrospective observation). HO prevention related to hip surgical trauma (total hip replacement, acetabular bone) is effective with anti-inflammatory and/or radiotherapy at the cost of adverse events specific to each procedure. Pulsed electromagnetic fields are also effective. Few prevention studies have been conducted in cases of traumatic brain injuries: we cite a study by etidronate effective in primary prevention, NSAIDs or bisphosphonates for secondary prevention of recurrence after surgical excision, postures and mobilizations.

Further reading

Baird EO, Kang QK. Prophylaxis of heterotopic ossification – an updated review. *J Orthop Surg Res* 2009;4:12.

Teasell RW, Mehta S, Aubut JL, Ashe MC, Sequeira K, Macaluso S, et al. A systematic review of the therapeutic interventions for heterotopic ossification after spinal cord injury. *Spinal Cord* 2010;48:512–21.

<http://dx.doi.org/10.1016/j.rehab.2012.07.447>

CO11-003-e

Neurogenic heterotopic ossification (NHO) and nerve compression: Example of the hip posterior HO and sciatic compression

M. Salga^{*}, M.C. Durand, C. Jourdan, A. Schnitzler, P. Denormandie, F. Genet
CHU Raymond-Poincaré, 104, boulevard Raymond-Poincaré, 92380 Garches, France

*Corresponding author.

E-mail address: marjoriesalga@hotmail.fr.

Keywords: Heterotopic ossification; Nerve compression; Sciatic nerve

Introduction.– Hip is the most important troublesome location for troublesome NHO. Sciatic nerve compression can occur when NHO are posterior [1]. The aim of this study is to describe the clinical and complementary exams characteristics and the HO features among patients who suffered from a posterior hip NHO.

Materials and methods.– A single-center study was carried out using the « BANKHO » database including 367 patients with 549 surgical interventions for troublesome HO after central neurological system (CNS) lesion (from 1994 to 2011). Patient's characteristics, aetiology of CNS damage, HO location, indication for surgery, complementary exam results and nerve macroscopic characteristics were collected. Neurolysis for sciatic nerve and HO resection were practiced by the same surgeon.

Results.– Among this database, 45 patients benefit surgery of sciatic nerve neurolysis and HO excision for 55 posterior hip HOs. Clinical suspicion for sciatic lesion was found in 12 HO cases. Eleven conducted to surgery for sciatic nerve compression associated or not with hip stiffness or coxalgia. The proportions of surgery for nerve compression seem the same in the different patient groups. Diffuse brain injury patients are often operated for stiffness while focal brain lesions for pain ($P=0.03$). Ten electro-neuromyography collected showed real signs of sciatic nerve lesions. After surgery, the number of people walking without technical assistance increased from one to seven, has doubled among dependant patients and sit position was possible in 100%.

Conclusion.– Sciatic nerve compression by a posterior hip HO after CNS lesion is not frequent. It has to be diagnosed the earlier as possible with the aim of restoring a neurological function after surgery. EMG is very useful mainly in cases of clinical symptoms are rare in patients with cognitive impairments or sensitivity loss.

Reference

[1] Abayev B, Ha E, Cruise C. A sciatic nerve lesion secondary to compression by a heterotopic ossification in the hip and thigh region – an electrodiagnostic approach. *Neurologist* 2005;11(3):184–6.

<http://dx.doi.org/10.1016/j.rehab.2012.07.448>

CO11-004-e

Unusual localizations of heterotopic ossification in traumatic brain injury

L. Corti^{a,*}, E. Galano^a, J. Froger^b, K. Bakhti^c, A. Nougaret^d, F. Coroian^c, C. Herisson^c, I. Laffont^c

^aService de MPR, CHU Montpellier-Lapeyronie, 371, avenue du Doyen-Gaston-Giraud, 34000 Montpellier, France

^bGrau du Roi-RRN, laboratoire Euromov, M2H université Montpellier 1, CHU Nîmes, France

^cService de MPR, laboratoire Euromov, M2H université Montpellier 1, CHU Montpellier-Lapeyronie, Montpellier, France

^dCentre hospitalier Coste-Floret, Lamalou Les Bains, France

*Corresponding author.

E-mail address: corti.lucas@gmail.com.

Keywords: Heterotopic ossification; Traumatic brain injury; Shoulder

Introduction.– Heterotopic ossifications (HO), or para-osteoarthropathies, are a frequent complication after traumatic brain injury, with a prevalence ranges between 10% and 20% [1]. Complications, like increased joint stiffness, ankylosis, or, rarely, neurovascular compressions, depend widely on localisations of HO. This has therapeutic impact because some of these complications must be surgically treated, sometimes quickly.

Observation.– We report two cases, from CHU of Montpellier, between November 2011 and April 2012.

Case No. 1 is a 22-year-old man who suffered of severe traumatic brain injury (initial GCS 6), with right coracoid base fracture associated with acromioclavicular joint dislocation. At 1 month, we noticed, on CT with three-dimensional surface reconstructions, a heterotopic bone formation around the fracture and the acromioclavicular joint. The patient was no symptomatic (no pain nor limited range of motion).

Case No. 2 is a 44-year-old man who suffered of multiple trauma with severe traumatic brain injury (initial GCS 4) with transverse process fracture of C6 and right clavicle fracture. After 3 months, we noticed a development of soft tissue ossification, between the right clavicle and the transverse process of C6, with early hyperfixation on bone scintigraphy, and a bony formation in the right coracoclavicular space. On clinical examination, we noticed an important limited range of motion of cervical vertebrae with non-reducible left head tilt,