Diagnostic clinique, électrologique et par imagerie éliminant les causes rachidiennes et pelviennes pouvant expliquer la douleur fessière et/ou la sciatogalgie. Douleurs évaluées par le patient par diminution < ou ≥ 50 % de la douleur prérhérapéutique.

Résultats.– Seize patients sont revus à quatre mois et 62,5 % de bons résultats (diminution douleurs ≥ 50 %). Deuxième injection de TBA chez 12 patients : 63 % de bons résultats pendant uniquement un mois. Troisième injection chez trois patients : 100 % de bons résultats un seul mois. Évaluation téléphonique de 14 patients ayant eu de bons résultats initiaux : cinq estiment avoir un bénéfice partiel persistant à 30 mois en moyenne. Pas de corrélation des résultats avec l’âge, l’ancienneté du SMP (moyenne 33 ± 44 mois), les lombalgies, la topographie des douleurs, les modifications électrologiques du réflexe H.

Discussion.– Quatre études publiées objectivent une efficacité statistiquement significative de la TBA de deux à quatre mois. Dans notre étude ces bons résultats ne se maintiennent pas non plus au-delà. La répétition des injections de TBA n’apporte pas d’effet cumulatif et la durée d’efficacité semble même diminuer. L’intérêt thérapeutique semble donc limité. En revanche, l’efficacité transitoire à court terme pourrait être utilisée pour confirmer le diagnostic de SMP puisque cette molécule a essentiellement une action musculaire locale sans diffusion contrairement aux corticoïdes.

Conclusion.– L’injection de TBA dans le piriforme au cours de formes chroniques ou rebelles de SMP est devenue pour nous un test diagnostique de quasi-certitude associé aux données cliniques et paracliniques pour une meilleure sélection des patients en vue du traitement chirurgical. Néanmoins, le bien-fondé de cette stratégie reste à confirmer par une étude prospective.

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English version

CO02-001-e

Interest of botulinum toxin in the pathologies of the musculoskeletal system

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Therapeutic trials (TT) of botulinum toxin (BT) develop in a wide variety of diseases of the musculoskeletal system. Myofascial syndromes have been studied since the physiopathogenic assumption is an excessive release of acetylcholine causing contractures, spasms or muscular "tensions" causing referred pain. TT concern diseases in touch with such muscular tensions: enthesopathy and tendinopathy (tennis elbow, plantar fasciitis, levator scapulae, rotator cuff, pubalgia...), some cervicogenic headaches, contractures reaction of complex regional pain syndrome type I, arthropathies or arthroplasty. Imbalances agonists/antagonists were also studied (patellofemoral syndrome).

TB is tested in entrapment syndromes by hypertrophy, contracture or abnormal anatomy of a muscle: piriformis and sciatic nerve, brachial plexus and scalenes, exertional compartment syndromes, entrapment syndrome of popliteal artery, supernumerary rebels muscles such as accessory soleus. Uninsightly muscular hypertrophies, mainly the masseter can be reduced as well.

The efficiency of TB on these conditions being analgesic, TB was tested by intradermal injections for neuropathic pain as well as intra-articular for painful arthritis in animals and mankind. Fibromyalgia has also led to TT.

These TT have variable methodological levels ranging from randomized controlled trials to cases reports. Systematic reviews and Cochrane reviews were published. This treatment appears effective for some diseases, while for others the results are discordant. All these results must be validated by further studies. The mode of action of TB by chemodenervation does not explain all observed effects. The direct action of TB on some neurotransmitters in nociception is likely. Other mechanisms of direct or indirect action are discussed: microcirculatory action by changes of muscle contraction, chondroprotective effect, facilitation of tendon healing...

The technical rules of use of TB are identical to those effective in central neurological diseases but there is no official approval (AMM) for these locomotor pathologies. The results are interesting enough even if they require further validation, to predict a bright future for this new scope of use of TB and to stimulate research for other effects of TB.

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Effectiveness of botulinum toxin A in the treatment of chronic lateral elbow tendinopathy medical treatment resistant

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Keywords: Lateral elbow tendinopathy; Epicondylitis; Tennis elbow; Botulinum toxin A

Introduction.– Lateral elbow tendinopathy is a common pathology. This pathology can become very disabling during transition to chronicity. After a year of evolution, the surgery that is sometimes proposed mainly consists in detaching the extensor carpi radialis brevis to its proximal insertion. Some authors have proposed an alternative treatment based on the injection of botulinum toxin A in the extensor carpi radialis brevis. The benefit of this therapy remains to be confirmed, especially the long-term effectiveness.

Method.– This is a randomized control trial conducted a prospective, double-blind placebo. Treatments compared are active treatment (40ui of botulinum toxin A Dysport diluted in 0.4 ml saline solution injection) with 0.4 ml of a saline solution injection (placebo). The injection is controlled by an EMG muscle stimulation in the extensor carpi radialis brevis. The main objective is to assess the analogic effect of the injection of botulinum toxin A after 3 months. Secondary objectives are to examine, in the short term, the duration of pain relief provided by this therapy and in the medium term, to assess the rate of recurrence after initial relief. We followed up two groups of 30 patients for one year.

Results.– The two populations are comparable in terms of age, initial painVAS and duration of the tendinopathy. We observed a significant decrease (P = 0.037) of pain in the botulinum toxin group compared to the placebo group at 3 months (primary endpoint). The pain reduction was also significant between day 0 (day of injection) and after 3 months. The effectiveness of the treatment was confirmed after 6 months and 1 year. The recurrence rate at 1 year in the botulinum toxin group was 4.2%.

Discussion.– In agreement with the literature, our study shows that botulinum toxin is an effective treatment in the lateral epicondylar tendinopathy muscle resistant to medical treatment well led. This is a non-invasive treatment, without significant side effects and without recurrence in the long term. There are very few of recurrence after treatment with botulinum toxin in this indication in a year follow up.

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Botulinum toxin injection for post-traumatic upper limb contractures

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Keywords: Contractures; Injury; Upper limb; Botulinum toxin

Objectives.– Botulinum toxin injection (BTI) is useful for reducing spasticity, but we have no information about its effectiveness in post-traumatic
contractures. Here, we present two case reports suggesting a definite interest in this domain.

Methods.– We reviewed patients who received BTI (2006–2011) for post-traumatic contractures of the upper limb. They were assessed for passive and active range of movement, pain (visual analogic scale) and passive and active functions.

Case reports.– The first patient suffered from severe and painful post-traumatic contractures of elbow and wrist flexors, following elbow dislocation, which severely limited joint extension and use of the hand. Oral treatment and physiotherapy had a very limited effect. Repeated BTI were performed in contractured and painful muscles, with limited doses (100U Botox®), each 2–3 months. In the 4–5 days following each injection, contraction and pain were reduced and this favoured active function of the antagonist muscles. Recovery was complete after four injection sessions, with fair satisfaction level. The second patient had been the victim of a traumatic injury of the upper extremity, with compartment syndrome. She suffered from severe multifocal painful contractures, impairing daily living, with loss of usage of the limb. Oral treatments and physical therapy had a modest effect. Iterative BTI were performed every four months (200U Botox®) for four years, with a partial, recurrent and constant gain on pain, active motricity, use of the limb, and level of satisfaction

Conclusion.– Following arthroplasty, BTI has yet shown definite effect on painful contractures of the hip and knee. Here, we present the first reports of such a symptomatic and functional effect on severe post-traumatic contractures. Botulinum toxin injections must be considered as a useful treatment for post-traumatic disabling contractures.

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**Botulinum toxin type A interest in diagnosis and treatment of exertional leg pain**

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**Keywords:** Botulinum toxin type A; Leg pain; Chronic compartment syndrome; Popliteal artery entrapment; Accessory soleus muscle

**Introduction.–** Etiologies of exertional leg pain are numerous and may be associated. This diversity requires a precise diagnostic break-up, and makes its therapeutic management sometimes complex. How should some abnormalities (supernumerary muscles, functional popliteal arteries entrapment) be handled when their imputability in pain is uncertain? Botulinum toxin type A (BTX-A) has been successfully used for several years in some lesions of the locomotor apparatus. Our objective is to demonstrate its diagnostic and therapeutic interest in the chronic compartment syndrome (CCS), functional popliteal artery entrapment syndrome and the accessory soleus muscle.Observation.– We are presenting a few studies or case series which are in the process of being analysed or published. The first open and prospective study demonstrates the diagnostic and therapeutic interest of BTX-A in 31 patients with antero-external CCS of the leg of a mean duration of 31 months. Pain disappeared in 97% of cases. A moderate muscular deficiency is nearly constant and disappears between 1 and 5 months in 94% of cases, preventing only exceptionally an early resumption of running. Intramuscular pressures, three months after BTX-A, had normalized. Eight patients presented a recurrence of pain between 6 and 30 months. In three patients with painful accessory soleus muscle treated by BTX-A injection within the muscle by stimulodetection, pain had disappeared. Two patients relapsed at distance. Five patients presenting with a functional trapped popliteal artery without anatomical lesion were treated by BTX-A injection. The results are in the process of analysis. A first patient was able to resume sport, as pain had disappeared and the echographic dynamic abnormalities had normalized.Discussion.– The precise use of BTX-A is a useful adjuvant in the diagnostic break-up of exertional leg pain, in addition to the absolutely essential complementary tests. It allows precising the imputability of anatomical or functional abnormalities in the origin of pain. BTX-A has its own therapeutic action allowing a prolonged amendment of some types of pain. In case of recurrence, it is an excellent pre-surgical test in non-responding pain with uncertain surgical results.

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**Axial myofascial pain syndromes and botulinum toxin**

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**Introduction.–** Botulinum toxin (BT) can be used in the treatment of neck and upper limb pain and in the management of low back pain with or without sciatica. Its use and justification in these indications are based on the myofascial pain concept according to Travell, which would be a malfunction of the motor endplate with excessive release of acetylcholine.