ences occurred for elbow, wrist and finger flexor spasticity, 3–6 weeks and 9–12 weeks after treatment. No improve-
ment in weighted mean difference was observed in the trial
of BoNT-B. Meta-analysis of the number of patients with
reduction in Ashworth scores favored BoNT-A compared to
placebo; similar data were not available for BoNT-B. BoNT
was generally well tolerated.

The results of this study indicate that BoNT-A is safe and
effective in reducing muscle hypertonia due to spasticity in
upper limb joints. Insufficient data were available to assess
the efficacy and tolerability of BoNT- B in spasticity.

Keywords: Spasticity; Botulinum toxin; Stroke
10.1016/j.toxicon.2008.04.068

67. A shot of myobloc: An answer to 25-year battle
with Tics?

Maria Alvarez
Wilford Hall Medical Center, Lackland AFB, USA

Objective: To discuss the use, safety, and efficacy of
Myobloc in Tics associated with pruritus.

Introduction: Tics are voluntary movements in response
to an urge. Although rare, complaints of a “horrible”
sensation, similar to an “itch”, which always preceded the
 tic movements have been described. This sensation would
thus be viewed as a trigger for the movements.

Method: Case report.

Result: The patient with annoying left scapular itch
(pruritus) for more than 25 years describes her symptoms
as very irritating, embarrassing, and distracting. Scratching
does not alleviate the sensation but she receives transient
relief whenever she pulls her left platysma, lower mouth,
and trapezius. She concluded that the itch is similar to an
irresistible urge to move her body. And although the
movements are voluntary, attempts to suppress the move-
ments usually result in a stronger itch and urge to move.

Prior to her consultation at our department, she had an
extensive evaluation by a dermatologist and a rheumatolo-
gist. After a discussion, she opted for off-label trial of myobloc
rather than oral medication. Myobloc was administered to
the left scapularis, platysma, and trapezius. She reported at
least 50% improvement in both sensation and movement at
week 1 that lasted for 12 weeks without adverse effect.

Conclusion: This suggests that Myobloc may potentially be
used as an antipruritic.

Keywords: Tics; Itch
10.1016/j.toxicon.2008.04.069

68. Neurobloc®/myobloc®: Unique features
and findings

Joseph Arezzo
Albert Einstein College of Medicine, New York, USA

The commercial availability of purified botulinum
poison type B (BoNT-B–NeuroBloc®/Myobloc®) adds a
new and valuable weapon to our arsenal for the treatment
of movement disorders and potentially pain. While BoNT-
A and BoNT-B share many features, such as remarkable
potency and high affinity for acetylcholine (ACh) neurons,
they are antigenically distinct, each enters neurons
through unique acceptor sites and cleaves different target
proteins on the vesicle docking complex. NeuroBloc® was
rationally developed and incorporates many key features
not found in earlier toxins, including a non-lyophilized
liquid formulation, stability at room temperature for 8 h
and the use of a lower pH designed specifically to keep
the toxin in complex and at a uniform molecular weight
during the injection process. NeuroBloc® was also
uniquely evaluated in an extensive series of preclinical
studies that directly measured induced changes in the
compound muscle action potential in non-human pri-
mates. These studies explored the closest feasible model
to humans and provided an opportunity to compare the
effects of BoNT-A and BoNT-B injected at doses producing
equivalent paresis in contralateral muscles of the same
preparation. These findings will be presented and dis-
cussed with regard to the pattern of change within a
muscle, the comparative spread of the effects of the toxins
to nearby and remote non-injected muscles and the
duration of action of each serotype. Finally, the preclinical
data will be discussed in relation to ‘safety’, the apparent
affinity of BoNT-B to autonomic ACh neurons and the
recovery of function in recent clinical studies.

Keywords: Botulinum toxin type B; Characteristics; Preclinical; Clinical
10.1016/j.toxicon.2008.04.070

69. Clinical safety of NT 201 (Xeomin®):
A meta-analysis

Reiner Benecke a, Susanne Grafe b, Georg Comes b
Clinic and Polyclinic of Neurology, Rostock, Germany
Merz Pharmaceuticals GmbH, Frankfurt/Main, Germany

NT 201 (Xeomin®), a new formulation of botulinum
neurotoxin type A, is free from complexing proteins. NT
201 has not been associated with immunogenicity in
animal models. Analyses were performed on the pooled
data from all subjects in 6 controlled clinical trials
(blepharospasm, cervical dystonia, and upper limb spastic-
ity). The pooled analyses include 539 NT 201 (Xeom-
in®), 442 BTXCo (Botox®), and 75 placebo subjects.
Additionally, the data of patients treated with NT 201
post-launch have also been evaluated. In the randomized,
controlled, double-blind studies NT 201 and BTXCo have
been used with a conversion factor of 1:1, producing a
comparable clinical efficacy. In the NT 201 group 26.7%, in
the BTXCo group 26.0% and in the placebo group 22.7% of
patients reported at least an adverse event (AE). The
differences in individual AEs between the two botulinum
formulations are only minor. The analysis of the 29,000
patients treated post-launch demonstrates that there is no
fatal outcome with a causal relationship to NT 201. No
new safety concerns have been identified from the
spontaneous reports since the market introduction in
2005. All adverse reactions reported were either already
known and/or were considered unlikely to be related to
NT 201 by the treating physician. In the meta-analysis of 6 NT 201 trials as well as approximately 29,000 post-launch patients, NT 201 has demonstrated a favorable risk–benefit profile.

Keyword: Xeomin
10.1016/j.toxicon.2008.04.071

70. Botulinum Toxin Type B clinical safety in cervical dystonia following up to 4 years of treatment

William Birmingham, Eric Pappert, Edgar Salazar-Grueso
Solstice Neurosciences, Inc, Malvern, USA

Objective: Summarize the Botulinum Toxin Type B (BoNT-B) clinical adverse event (AE) data in cervical dystonia (CD).

Background: 759 unique patients (pt) received BoNT-B in 1 comparator and 4 placebo-controlled trials (CT) and 3 open-label trials (OLT). Doses ranged from 400 to 25 K Units (U).

Methods: AE data were pooled and tabulated.

Results: AE data represent 1432 pt-years; 5727 injections. Most pts were female (61%) and white (97%); mean age was 52.5 yrs. The median dose in most open-label sessions was 15 KU. In 2 long-term OLTs (n = 557) 22% of pts received doses from > 20 K to 25 KU. Treatment-related AEs (TRAE) occurred in 160 (51%) pts in CT and 524 (76%) pts in OLT. The most common TRAEs in CT were dry mouth (17%) and dysphagia (18%). These AEs were the most common in OLT. Withdrawal due to AEs occurred in 2 (<1%) pts in CT and 40 (6%) pts in OLT. One (<1%) pt withdrawal in CT and 34 (5%) in OLT were due to TRAE. The majority of AEs were mild to moderate in severity. The most common severe AEs were dry mouth (6%), dysphagia (2%), and headache (2%). Serious AEs were reported by 10 (3%) pts in CT and 122 (18%) in OLT; 1 (dysphagia) was a TRAE. No deaths were treatment-related.

Conclusions: BoNT-B doses up to 25 KU appear safe in CD. The most common TRAEs are dry mouth and dysphagia, which were typically mild to moderate in severity and infrequently lead to discontinuation.

Supported by Solstice Neurosciences, Inc.

Keywords: Botulinum Toxin Type B; Safety; Adverse Events
10.1016/j.toxicon.2008.04.072

71. Botulinum toxin therapy for laryngeal dystonia and other hyperfunctional laryngeal disorders

Andrew Blitzer
Columbia University, New York, NY, USA

Botulinum toxin decreases hyperactivity with the blockade of the release of acetyl choline. We first injected a case of laryngeal dystonia in April 1984, and since this time have over 1400 patients. These include the treatment of adductor and abductor spasmodic dysphonia, adductor respiratory dystonia, and Singer’s dystonia. The use of botulinum toxin for focal laryngeal dystonia (spasmodic dysphonia) has become the “gold standard” for the management of this disorder.

The toxin has also been used for many other hyperfunctional laryngeal disorders including essential voice tremor, muscle tension dysphonia, puberophonia, arytenoids rebalancing, hyperfunctional contact granulomas and nodules, tracheoesophageal speech failures, and cricopharyngeal achalasia. A review of technique, dosing, and results will be presented.

Keywords: Larynx; Botulinum toxin; Dysphonia
10.1016/j.toxicon.2008.04.073

72. Botulinum toxin in Hallervorden–Spatz syndrome

Márcio Neves Cardoso, Joana Damásio, Marina Magalhães
Hospital Santo António-Centro Hospitalar do Porto, Porto, Portugal

Hallervorden–Spatz Syndrome (HSS) is a rare autosomal-recessive pantothenate kinase-associated neurodegenerative disorder. The clinical phenotype includes dystonia and parkinsonism, among other neurological manifestations. Pharmacotherapies for dystonia, although sometimes efficacious, may have a transient effect. There are few reports regarding specific uses of Botulinum Toxin (BT) in management of these patients. We present two cases, with definitive HSS, treated with BT. (1) A 17-year old male, with neuropsychiatric symptoms beginning at 9 years. At 14 years, he developed bilateral hand dystonia that initially improved with medical treatment. It progressed to a generalised dystonia, with oromandibular, cervical, axial and lower limb involvement. Cervical, oromandibular and limb dystonia was treated with BT with a temporary good response. (2) A 28-year-old female, who presented with dystonia and parkinsonism. Dystonia became worse and started to involve craniofacial (blepharospasm and oromandibular dystonia) and limb muscles. She has been treated with BT for more than 10 years with good response. BT treatment has been enough to control dystonia with easier chewing and the disappearance of a gum lesion that had developed.

Conclusion: Although there is no specific treatment for HSS, there are disabling symptoms that may be ameliorated by BT applications, improving the quality of life for patients and their caregivers.

Keywords: Hallervorden–Spatz Syndrome; Botulinum toxin
10.1016/j.toxicon.2008.04.074

73. Ultrasound guided intramuscular injection of botulinum toxin A in a patient with writer’s cramp—A case report

Julie Champagne
Minneapolis VA Medical Center, Minneapolis, USA

A 56-year-old male with recalcitrant focal dystonia (writer’s cramp) of the right thumb was referred to our clinic for worsening of dystonia and functional decline.