

order (after Alzheimer's disease). In addition to the classic motor symptoms, such as bradykinesia, tremor, rigidity, and postural instability, PD is associated with a large variety of non-motor symptoms (Jankovic, JNNP 2008, in press). BoNT has been found useful in many of the motor symptoms associated with PD, such as hand and jaw tremor, cervical, trunk and limb dystonia, blepharospasm, apraxia of eyelid opening, bruxism, camptocormia, freezing of gait, as well as in non-motor symptoms such as sialorrhea, seborrhea, hyperhidrosis, overactive bladder, and constipation (Sheffield and Jankovic, J. Expert Rev Neurotherapeutics 2007;7:637–647). BoNT may be the treatment of choice for many of these symptoms as the conventional dopaminergic drugs are of usually limited or no benefit, particularly for the non-motor problems. This review will focus on evidence-based studies for these various indications, highlighting the broad spectrum of disease-oriented, clinical utility of BoNT.

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### 89. Efficacy of NT 201 (Xeomin®) in focal dystonia

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The overall efficacy of NT 201 (Xeomin®, Merz Pharmaceuticals, Germany) in comparison to BTXCo (Botox®) has been assessed in the two largest controlled trials in cervical dystonia and blepharospasm. NT 201 has not been associated with immunogenicity in animal models in contrast to other preparations of botulinum neurotoxin.

**Methods:** Analyses were performed on the pooled data from all subjects in 2 clinical trials (blepharospasm and cervical dystonia). 343 patients receiving NT 201 and 340 patients receiving BTXCo were included.

**Results:** In the randomized, controlled, double-blind studies, NT 201 and BTXCo have been used with a conversion factor of 1:1. It has been demonstrated that NT 201 was equally efficacious as BTXCo. NT 201 and BTXCo were comparable regarding the duration of treatment effect analysed by the Kaplan–Meier survival method as well as the global impression scores by the physician, e.g. in 71.8% of the NT 201 patients the treatment effect was rated as very good or good at the end of the trial vs. 70.6% for BTXCo patients. The number of responders using the TWSTRS-severity score was 77.0% for NT 201 and 77.3% for BTXCo.

**Conclusions:** In this pooled analysis NT 201 was equally efficacious as BTXCo when used with a conversion factor of 1:1, which has been previously determined in different trials. These data together with the known safety profile suggest that subjects can be easily switched from BTXCo to NT 201.

Keyword: Xeomin

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### 90. Experience with A2NTX in dystonia and spasticity

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A2NTX is a unique botulinum type A neurotoxin preparation of 150 kDa derived from a subtype A2 strain of *Clostridium botulinum*, which solely produces M toxin of 300 kDa (No. PCNT115-3,  $9.30 \times 10^4$  U/mL). We have shown in animal studies that A2NTX is less diffusible than BOTOX® or Xeomin®, and, as a consequence, with a larger safety margin as defined by the range between LD50 and ED50 (standard dose required to reduce CMAP at injection by half). To test its promise of clinical utility for treating larger muscles with hyperactivity, we conducted a pilot study to assess the safety and efficacy of this preparation in 30 patients (19 males, age 20–72 years) with lower limb spasticity ( $n = 15$ ) or generalized/axial/hemi-dystonia. Selection criteria were those who failed to respond to 3 successive dosings of 300 U BOTOX over 6 months as measured by modified Rankin scale. The dosing started at least 4 months after the previous BOTOX injection. The efficacies were measured by modified Rankin scale. At Aug.1, 2007, 100–1500 U of NTX injections were made at a time, and the mean cumulative dose per subject mounted to 2954.5 U (range 100–7750 U) with no evidence of secondary unresponsiveness. After the initial 3 injections, Modified Rankin scale improved by 1 in 5 patients and by 2 in 1 patient. At present, the scale improved by 1 in 9 subjects and by 2 in 2 patients. Adverse effects included mild decrease in grasp power ( $n = 6$ ) and swallowing difficulty.

Keyword: NTX A2 dystonia spasticity

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### 91. Long-term treatment with botulinum toxin type A in hemifacial spasm

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**Introduction:** We present a retrospective analysis of 145 patients with hemifacial spasm (HFS) treated with botulinum toxin type A (BTX; Botox® or Dysport®) in our movement disorder clinic between 1993 and 2007.

**Methods:** BTX dose per treatment and per treated muscle, global clinical improvement (GCI; 0–3; 0 = no effect, 3 = marked improvement), side effects, latency and duration of response were recalled from our database. Statistical analysis was carried out using SPSS v 14.0 (SPSS, Chicago, IL).

**Results:** The mean dosage of BTX was  $22 \pm 10$  units (ranged from 5 to 50 units) for Botox® and  $51 \pm 24$  units (ranged from 15 to 100 U) for Dysport®. Treatment duration ranged from 2 to 11 years with a mean value of 6 years. The mean latency of response was  $6.1 \pm 3.2$  days for Botox® and  $5.9 \pm 3.4$  for Dysport®. The mean duration of response was similar for