

Data supplement for Kruger et al., Can Botulinum Toxin Help Patients With Borderline Personality Disorder? Am J Psychiatry (doi: 10.1176/appi.ajp.2016.16020174)

Supplementary table 1: Cases of female patients with borderline personality disorder treated with botulinum toxin				
Case	Age	Severity at baseline (BSL-23/Zan-BPD)	Severity after treatment (BSL-23/Zan-BPD)	Clinical information
1	41	51/13	24/5	<p>The patient received Dialectic Behavioral Therapy on a ward specialized for the treatment of borderline personality disorder. After the therapy was unsuccessful, she received botulinum toxin treatment at the end of the inpatient stay. Within five weeks she experienced a marked improvement in borderline personality disorder symptoms.</p> <p>Figure 1A</p>
2	20	72/17	13/1	<p>The patient with comorbid major depression was treated with Dialectic Behavioral Therapy and venlafaxine at a dose of 225mg/d on a ward specialized for the treatment of borderline personality disorder. As this treatment remained unsuccessful, she received botulinum toxin injection, which was followed by almost complete remission of borderline personality disorder symptoms within only two weeks. Approximately 10 months later some of the symptoms reoccurred and a second treatment was requested by the patient, which again led to clinical improvement. The comorbid depression</p>

				improved, too. Figure 1B
3	27	76/-	26/-	The patient with comorbid social phobia and brief recurrent depression responded insufficiently to treatment with Dialectic Behavioral Therapy and venlafaxine on a ward specialized for the treatment of borderline personality disorder. She responded well to botulinum toxin injection. As the paralytic effect of botulinum toxin started to wear off after 12 weeks there was a recurrence of borderline personality disorder symptoms and the patients requested another botulinum toxin injection, which again led to clinical improvement. After another five months and recurrence of symptoms there was a third successful botulinum toxin treatment. Figure 1C
4	26	73/-	14/-	The patient with concomitant depressive symptoms responded insufficiently to inpatient treatment with venlafaxine and valdoxan. Subsequent botulinum toxin treatment led to marked improvement in borderline personality disorder symptoms within six weeks. Depressive symptoms also improved, yet to a lesser extent (Beck Depression Inventory score from 35 to 21), indicating that improvement in borderline personality disorder symptoms was not secondary to improvement in depressive symptoms.

5	41	66/23	27/8	<p>A patient with an enduring personality change after catastrophic experience (F62.0) with borderline personality disorder symptoms as well as posttraumatic stress disorder and comorbid depressive episodes received inpatient treatment without sufficient success. Previously, she was placed in a psychiatric home after she was not able to fulfill her social roles as a mother (2 children) and wife. She regularly depicted states of dissociation during which she committed severe self-mutilation and behavioral disturbances including injuries of nerves and vessels, drops on the floor and knocking her head against walls and floors. She then was offered botulinum toxin treatment. After two weeks borderline personality disorder symptomatology improved markedly and remained stable on a low level for at least eight weeks. Notably, a significant improvement of dissociative states was observed with less or even no self-harming. Comorbid symptoms also improved. In concordance with her family she then even decided to move back from the psychiatric home to her family and their private home. She received two additional botulinum toxin injections about every four months when some of the symptoms had reoccurred, which were also successful.</p>
6	59	75/-	38/-	<p>The severely ill patient with borderline personality disorder and comorbid alcohol</p>

				dependence and major depression treated with quetiapine received 29 U of onabotulinumtoxinA as an adjunctive treatment during an inpatient stay. Within four weeks of treatment, her borderline personality disorder symptoms improved and also her Montgomery Asberg Depression Rating Scale score improved from 38 to 15. Eight months later, her symptoms worsened again. Repetition of the botulinum toxin treatment in an outpatient setting without any change in oral psychiatric medication was followed by an improvement of the BSL-23 score from 63 to 42 and of the Montgomery Asberg Depression Rating Scale score from 29 to 16.
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The table summarizes six consecutive cases of female patients suffering from borderline personality disorder. All patients were treated on a psychiatric ward, partly on a ward specialized for the treatment of borderline personality disorder with a therapeutic program comprising dialectic behavioral therapy. Botulinum toxin treatment was applied as a compassionate use therapy after conventional therapies were insufficient to improve the symptoms of borderline personality disorder. Botulinum toxin treatment was further justified by the ability of the patients to produce frown lines, which represent an approved indication for botulinum toxin treatment and by the presence of some depressive symptoms (measured by the Beck Depression Inventory or the Montgomery Asberg Depression Rating Scale), which have been shown to respond to botulinum toxin treatment in previous studies (1-4). After informed consent all patients received glabellar injections of 29 U of onabotulinumtoxinA distributed to five injection sites (procerus muscle, 7 U; corrugator muscles medial part, 6 U bilaterally; corrugator muscles lateral part, 5 U bilaterally), resulting in a paralysis of the glabellar muscles for about three months. In all patients the 23-item

version of the self-rating Borderline Symptom List (BSL-23) was used to measure severity of borderline personality disorder symptoms. In some cases we also applied the expert rating Zanarini borderline personality disorder scale (Zan-BPD). Borderline personality disorder severity was measured immediately before botulinum toxin treatment and at the follow-up visits. The 'severity after treatment' scores were collected after two to six weeks after the first botulinum toxin treatment.