

# Injecting BOTOX in the treatment of migraine headaches: Does anatomy matter?

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## Objective

The preoperative identification of sensitive, pericranial trigger areas with botulinum toxin has been shown to be a reliable method for selecting the appropriate site in the surgical treatment of migraine patients. The symptomatic improvement through botulinum toxin is a valid, prospective indicator of the operative results. Botox is also gaining increasing popularity as a conservative treatment for migraine headaches. There are, however, significant differences in the technique of injecting Botox. This prospective study was performed to compare the efficacy of indiscriminate injections into the frontal area versus specific, isolated injections into the corrugator muscles

### Method:

60 Patients (54 female, 6 male)  
age range: 24-52  
mean age: 43,4 ± 1,7

Randomised in two groups to receive specific corrugator versus frontal-area-injections

Severity of migraine grades	I	II	III	IV
number of migraine days/month	1-3	4-6	7-9	10+
pain intensity (scale 1-10)	1-2	3-5	6-8	9-10
number of triptans consumed	1-2	3-4	5-7	8+

Patients:	Specific corrugator injections	Frontal injections (excluding corrugator)
	n = 30	n = 30
Grade I	2	4
Grade II	7	8
Grade III	13	9
Grade IV	8	9



„fixed-site“ approach



„follow the pain“ approach



Results:	follow up-period 12 weeks	
	25 Units each corrugator injections n = 30	50 Units total frontal injections (excluding corrugator) n = 30
Complete remission of symptoms	32 %	12 %
Improvement of > 50 % of symptoms	36 %	26 %
Improvement of < 50 % of symptoms	18 %	31 %
no change	14 %	31 %

83 % of „failures“ in both groups belonged to a grade IV severity of symptoms group and/or were of advanced age

## Conclusion

Anatomical details play a pivotal role for injecting Botox in the treatment of migraine headaches. Precise injections into the corrugator muscles yielded significantly more pronounced improvements in terms of frequency of pain attacks and intensity of pain when compared to wide, indiscriminate injections of the frontal area. The results of studies on botulinum toxin for the treatment of migraine could depend on the anatomical distribution of the agent.