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Prolonged Effect of OnabotulinumtoxinA on Chronic Migraine in 87 Koreans

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Dear Editor,

OnabotulinumtoxinA (BOTOX) has been approved for prophylaxis in chronic migraine (CM) since 2010[1] based on the findings of the Phase 3 REsearch Evaluating Migraine Prophylaxis Therapy (PREEMPT) trial.[2] The duration of BOTOX efficacy is known to be 3 months, but prolonged efficacy (>3 months) after a single cycle of BOTOX has not been evaluated thoroughly. Moreover, the efficacy and adverse effects of BOTOX have rarely been documented in Koreans. We report subjective headache improvements in Korean subjects with CM who received a single cycle of BOTOX.

Consecutive adult patients (age ≥18 years) with CM who visited the Seoul National University Hospital Headache Clinic between July 2014 and Jan 2015 were reviewed. *Clostridium botulinum* toxin type A (BOTOX, Allergan, Irvine, CA, USA) was injected according to a previous protocol.[2] All patients were asked to return after 4 weeks, and were asked to undergo follow-up on a regular basis thereafter. We retrospectively evaluated their clinical responses at four time points (at 4 weeks, 3 months, 6 months, and 1 year after the BOTOX treatment). At each evaluation, the patients were asked about their headache severity and its improvement after the BOTOX treatment. Their answers were categorized into three groups according to the subjective degree of headache improvement: group 1 (good response), with no migraine attacks after the treatment; group 2 (moderate response), with significant improvement (better than before, but still experiencing migraine attacks); and group 3 (no response).

One hundred adult patients who met the inclusion criteria received BOTOX. Nine patients were lost to the first follow-up at 4 weeks, and four who received multiple BOTOX treatments were also excluded. The included patients were aged 52.0±15.6 years, and 74.7% were female. Fifty-one of them (58.6%) were taking the median of two (range, one to five) preventive medications before receiving the BOTOX therapy.

At 4 week, 11 (12.6%) patients had a good response (group 1), 52 (59.8%) had a significant response, and 24 (27.6%) had no response (group 3) to the BOTOX. Overall 60 and 41 patients were followed-up at 6 months and 1 year, respectively, after the BOTOX treatment, with 75% and 63.4% exhibiting continuing improvement. Ten patients with no response after 4 weeks exhibited an improvement at 3 months (Fig. 1). The proportions of follow-up loss (chi-square test: p=0.444 at 6 months and 0.198 at 1 year) and medication increase or change during follow-up (chi-square test: p=0.203 at 6 months and 0.203 at 1 year) did not differ with the treatment response at 4 weeks. Eight (9.2%) reported adverse events (one with skin rash, two with pain at the injection sites, two with dizziness, and three with headache), all of which resolved spontaneously without treatment.

This report is consistent with many previous studies showing that BOTOX is beneficial to patients with CM and has few adverse effects.[2,3] We suggest that the clinical benefit of the BOTOX may last for more than 3 months, which is known to be its pharmacological dura-

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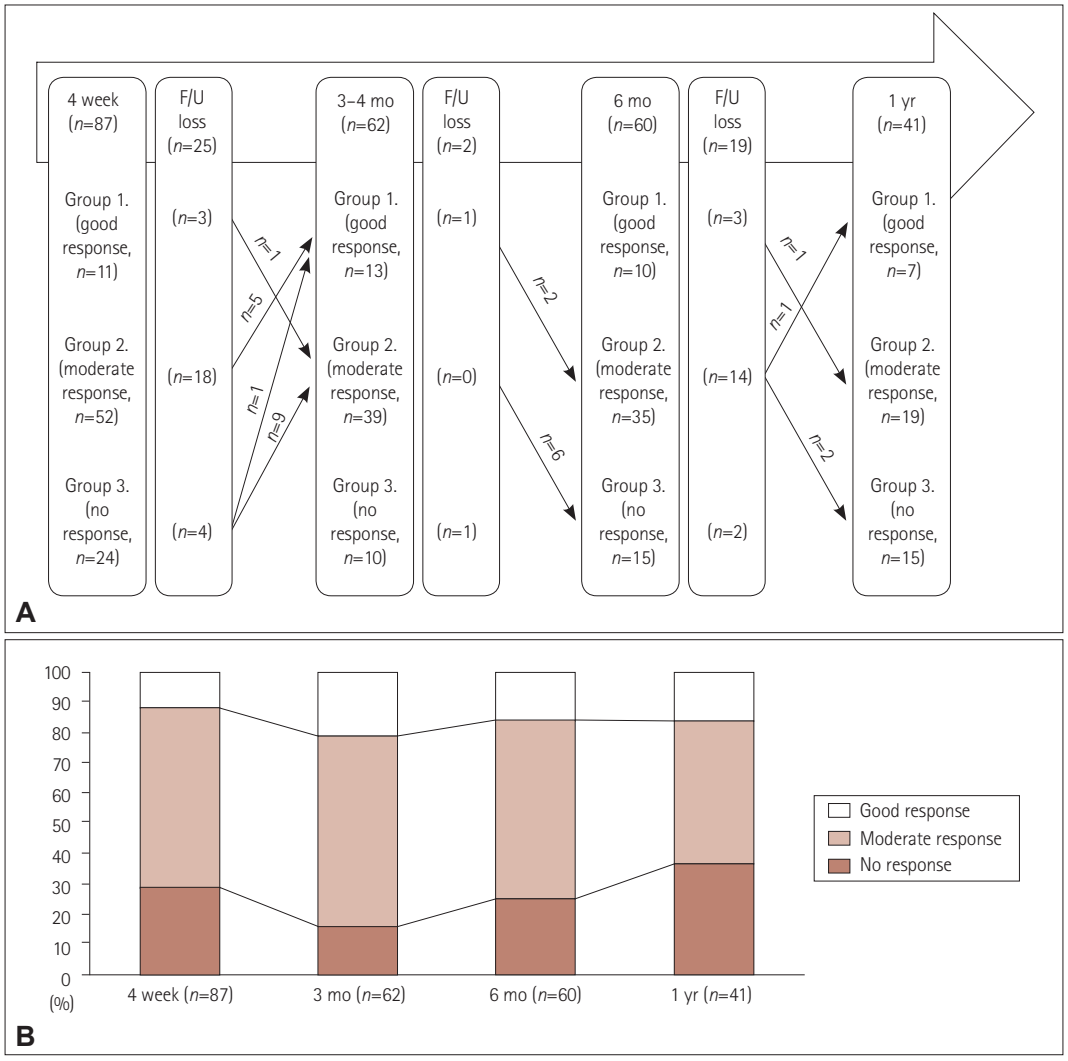

Fig. 1. Treatment responses after BOTOX therapy. A: Number of patients in each response group and numbers of patients who changed groups at 4 weeks, 3 months, 6 months, and 1 year after the BOTOX treatment. B: Proportions of patients in each response group at 4 weeks, 3 months, 6 months, and 1 year after the BOTOX treatment. BOTOX: OnabotulinumtoxinA.

tion and is probably due to its effects on central antinociception.[4]

Applying the PREEMPT protocol in Asian migraineurs can reportedly cause cosmetic problems such as upward deviation of the lateral part of the eyebrows or transverse wrinkles between the eyes. Because the forehead tends to be broader in Asians than in Caucasians,[5] broader injections into the forehead may be considered than those suggested by the PREEMPT protocol.[2]

This study retrospectively observed subjective headache improvements after BOTOX treatment. However, the retrospective design means that we cannot rule out other possible confounders that can affect headache improvement. The improvement was evaluated by subjective statements from the patients, not by headache diaries. Since there was no control group, a placebo effect in the headache improvement cannot be ruled out.

Conflicts of Interest

The authors have no financial conflicts of interest.

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REFERENCES

1. Levin M. The international classification of headache disorders, 3rd edition (ICHD III)-changes and challenges. *Headache* 2013;53:1383-1395.
2. Diener HC, Dodick DW, Aurora SK, Turkel CC, DeGryse RE, Lipton RB, et al. OnabotulinumtoxinA for treatment of chronic migraine: results from the double-blind, randomized, placebo-controlled phase of the PREEMPT 2 trial. *Cephalalgia* 2010;30:804-814.
3. Khalil M, Zafar HW, Quarshie V, Ahmed F. Prospective analysis of

the use of OnabotulinumtoxinA (BOTOX) in the treatment of chronic migraine; real-life data in 254 patients from Hull, U.K. *J Headache Pain* 2014;15:54.
4. Barbanti P, Egeo G, Fofi L, Aurilia C, Piroso S. Rationale for use of onabotulinum toxin A (BOTOX) in chronic migraine. *Neurol Sci* 2015; 36 Suppl 1:29-32.
5. asianplasticsurgeryguide.com [internet]. Asian plastic surgery. Comparison of 30 east asian and european facial attributes. Available from: http://www.asianplasticsurgeryguide.com/overview/asianeuropean-face.html.