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Patterns of Use of Peripheral Nerve Blocks and Trigger Point Injections for Pediatric Headache: Results of a survey of the American Headache Society Pediatric & Adolescent Section

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Abstract

Objective—To describe current patterns of use of nerve blocks and trigger point injections for treatment of pediatric headache.

Background—Peripheral nerve blocks are often used to treat headaches in adults and children, but the available studies and practice data from adult headache specialists have shown wide variability in diagnostic indications, sites injected, and medication(s) used. The purpose of this study was to describe current practice patterns in the use of nerve blocks and trigger point injections for pediatric headache disorders.

Methods—A survey was created in REDCap, and sent via email to the 82 members of the Pediatric & Adolescent Section of the American Headache Society in June 2015. The survey queried about current practice and use of nerve blocks, as well as respondents' opinions regarding gaps in the evidence for use of nerve blocks in this patient population.

Results—Forty-one complete, 5 incomplete, and 3 duplicate responses were submitted (response rate complete 50%). Seventy-eight percent of the respondents identified their primary specialty as Child Neurology, and 51% were certified in headache medicine. Twenty-six (63%) respondents perform nerve blocks themselves, and 7 (17%) refer patients to another provider for nerve blocks. Chronic migraine with status migrainosus was the most common indication for nerve blocks (82%), though occipital neuralgia (79%), status migrainosus (73%), chronic migraine without flare (70%), post-traumatic headache (70%), and new daily persistent headache (67%) were also common indications. The most commonly selected clinically meaningful response for status migrainosus was 50% reduction in severity, while for chronic migraine this was a 50% decrease in frequency at 4 weeks. Respondents inject the following locations: 100% inject the greater occipital nerve, 69% lesser occipital nerve, 50% supraorbital, 46% trigger point injections, 42% auriculotemporal, and 34% supratrochlear. All respondents used local anesthetic, while 12 (46%) also use corticosteroid (8 bupivacaine only, 4 each lidocaine + bupivacaine, lidocaine +

corticosteroid, bupivacaine + corticosteroid, lidocaine + bupivacaine + corticosteroid, and 2 lidocaine only).

Conclusion—Despite limited evidence, nerve blocks are commonly used by pediatric headache specialists. There is considerable variability among clinicians as to injection site(s) and medication selection, indicating a substantial gap in the literature to guide practice, and supporting the need for further research in this area.

Keywords

Peripheral Nerve block; Headache; Migraine; Pediatric; Practice survey

Introduction

Peripheral Nerve Blocks (PNBs) are a procedure to modulate pain signals coming from sensory nerves using local anesthetic medications[1]. The local anesthetics cause immediate numbness, though relief from pain can begin at the time of the injection[2] or have a delayed onset of several days to two weeks following[3]—presumably due to changes in signaling in the involved networks. Duration of headache benefit can last from hours to weeks, extending well beyond the duration of nerve blockade[3–7]. Local anesthetics are theorized to affect central pain modulation via the trigeminal nucleus caudalis, where the C2 afferents and trigeminal afferents co-localize[8, 9]. Longer acting local anesthetics and corticosteroids may be used to try to prolong the duration of headache benefit. However, this has only been substantiated with corticosteroids in cluster headache[10], and no study has proven benefit of longer acting over shorter acting local anesthetics. Trigger point injections (TPIs), in which local anesthetics are injected into muscular trigger points, are sometimes used in conjunction with PNBs.

Nerve blocks have been used for many different headache types, and the injections can be done in several locations using a variety of medications. A study published in 2010 described significant variability in the use of nerve blocks by adult headache specialists[11]. Following that, the American Headache Society Special Interest Section for PNBs and other Interventional Procedures developed consensus recommendation for the performance of PNBs[12] and TPIs[13]. The Special Interest Section then surveyed neurology residency program directors, who described a high rate of resident exposure to procedural treatments for headache including nerve blocks in residency, but a low rate of formal credentialing in such procedures. Respondents were more likely to be located at an institution with a headache medicine fellowship, and the survey asked specifically about adult, but not child, neurology residents[14]. Considering that only 10% of headache medicine specialists who had been certified by the United Council for Neurologic Subspecialties (UCNS) by 2014 are pediatric headache specialists[15], it is likely that training in PNBs is less common in child neurology residency.

Typical of many therapies, nerve blocks have not been thoroughly tested in children with headache. Retrospective pediatric case series have described benefit from nerve blocks in Chronic Migraine, New Daily Persistent Headache, and Post-Traumatic Headache[3–6]. Though no controlled studies have been performed in children, nerve blocks are used

because available clinical evidence suggests a low risk of side effects, and they have been used in children with other conditions for many years[16]. The primary purpose of this study was to describe current practice patterns in the use of nerve blocks to treat pediatric headaches.

Methods

A survey was developed to query pediatric headache providers' use of nerve blocks in their current clinical practice. Questions focused on patient diagnoses, injection location, medication used, frequency of injections, desired outcomes, and safety concerns (see Appendix). The Children's Hospital of Philadelphia IRB considered the study exempt from review.

The questionnaire was emailed to the 82 members of the distribution list of the Pediatric & Adolescent Section of the American Headache Society. Recipients were invited to forward the email to other colleagues whom they considered knowledgeable about nerve blocks for children with headaches. However, because the distribution list did not contain individual names it was not possible to know whether there were any respondents who were not on the original list. Respondents had the option to provide their name and institution but this was not required. The initial email was sent on June 18th, 2015. The study was discussed at the Section meeting a few days later, and three email reminders were sent. The last response was completed on August 4th, 2015. Respondents who had provided their name but left the survey incomplete were contacted requesting them to complete their answers, and all of these did. Respondents who indicated an answer which was a significant outlier were contacted to ensure that they understood the question and had answered it appropriately, but none of them responded with clarification.

Study data were collected and managed using REDCap electronic data capture tools hosted at the Children's Hospital of Philadelphia[17]. Responses which were definite or possible duplicates and those with minimal information were not included in the analysis. Responses were summarized by standard descriptive statistics, including means for continuous variables with parametric distribution, medians for continuous variables with non-parametric distribution, and proportions for binary and categorical variables. Kruskal-Wallis test was used to compare medians of different groups. Fisher's exact test was used to compare counts in each group. Comparisons were considered significant when $p < 0.05$. No adjustment was made for multiple comparisons. Analysis was performed with STATA/SE14.

Results

Forty-nine surveys were initiated. Five questionnaires were incomplete and thus excluded. Three respondents submitted duplicate questionnaires; these were merged into a single response per participant. Dropping these incomplete and duplicate responses, the number of responses included in analysis was 41. Since the exact number of survey recipients is not known, this equates to an estimated 50% response rate. For questions regarding demographics and overall beliefs about the effect and study of nerve blocks the denominator

is 41. Some questions were directed only to respondents who perform ($n=26$) or refer patients for ($n=7$) nerve blocks.

Characteristics of Respondents

All respondents indicated that they care for pediatric and adolescent patients with headache. The median number of pediatric headache new patient visits per month was 27.5, (range 1–100; Interquartile Range (IQR) 15–50). There was no significant difference in the median number of new pediatric headache patients seen by those who perform, refer for, or do not use nerve blocks. Among the 26 (63%) respondents who perform nerve blocks themselves, the median number of procedures done per month was 4 (range 0–100; IQR 2–12). Respondents who do not perform nerve blocks indicated the following reasons: I don't perform them and cannot refer (3), I have not been trained (1), the other treatments I use are sufficient (1), I collaborate with others who do them (1), and I don't know if they are effective (1),

Degree, primary specialty, UCNS certification, and practice setting are described in Table 1. Most respondents were physicians who specialize in child neurology in an academic or hospital-based practice. There was a significant difference in the distribution of primary specialty in those who perform nerve blocks versus those who do not use them ($p=0.01$). All of the responding adult neurologists (3), the family practitioner (1), and most of the child neurologists (22 of 32) perform nerve blocks. The responding general pediatricians (2) and the child psychiatrist (1) do not use nerve blocks. About half of respondents are certified in headache medicine by the United Council for Neurological Subspecialties (UCNS), with a moderately significant difference between those who perform or refer for nerve blocks compared with those who do not use them (Perform vs Do not use: $p=0.03$, Refer vs Do not use: $p=0.041$, see Table 1). Respondents come from Australia, Canada, the United Kingdom, and the United States. U.S. respondents were from 14 different states.

Patient Selection & Headache Diagnoses

The 33 (80%) respondents who perform or refer patients for nerve blocks were asked to indicate those clinical indications for which they use nerve blocks. One did not answer this question, but the remainder ($n=32$) indicated they use nerve blocks for more than one headache condition (mean = 6). Chronic migraine with superimposed pain flare ($n=27$, 84%), Occipital Neuralgia ($n=26$, 81%), and Status Migrainosus ($n=24$, 75%) were the most commonly selected indications (see Figure 1).

Respondents were asked whether there are clinical situations in which they particularly use or avoid the use of nerve blocks. One indicated preference for nerve blocks over many medications which cause systemic side effects. Two respondents described and questioned the use of nerve blocks as a precursor to or in combination with onabotulinum toxin-A injections. A few identified that in younger patients and those with needle phobia/anxiety they treat nerve blocks as a "last resort" due to the pain of the procedure. Most respondents ($n=21$, 66%) did not have a specific weight cut-off below which they would not recommend nerve blocks. Of the 11 (34%) respondents who indicated a weight cut-off, the mean

minimum weight was 30kg (range 15–40kg). In contrast, 21 (66%) recommended limiting the minimum patient age; the mean minimum age was 10 years (range 5–15 years).

Medications

Those 33 who perform or refer patients for nerve blocks were asked what they think is the most effective medication or combination of medications, and 29 responded. Fourteen (48%) indicated bupivacaine, alone or in combination with lidocaine and/or a corticosteroid. However, there was wide variability as to which medication(s) are actually used by those who perform nerve blocks (Table 2). All use a local anesthetic, either lidocaine and/or bupivacaine, though at varying concentrations. About half of respondents ($n=12/26$) add corticosteroid. No respondents use epinephrine, fentanyl, or clonidine. A few respondents ($n=4$) indicated that they vary medication selection based on clinical factors. For example, corticosteroids might be used in injections for cluster headache or hemicrania continua, or in those done in the occipital area but not in frontal injections.

Frequency of repeated injections

Of the 26 respondents (63%) who perform injections themselves, 11 (42%) stated that they usually do an injection once, 9 (35%) indicated that they would repeat an injection if the patient reported sufficient benefit, and 6 (23%) indicated that they would plan to repeat injections, with planned intervals ranging from 2–12 weeks. The most commonly recommended interval between injections without corticosteroid was 1–2 weeks, versus over 11 weeks for injections containing corticosteroid (see Table 3).

When asked about the minimum necessary response to consider repeating a nerve block in the same patient (without specifying condition), the most common answers were improvement in symptoms for 24 hours ($n=8/32$, 25%) and improvement in symptoms for 1 week ($n=8/32$, 25%). Seven (22%) indicated it would depend on diagnosis, patient preference, and balance of benefit and side effects. Some respondents clarified that they would plan to do a single injection for status migrainosus, but repeated injections for chronic migraine. One raised the opinion that the first nerve block is always the most effective, and that there is decreased effectiveness with repeated blocks.

Selection of injection sites

Of the 26 respondents who perform injections, 5 (19%) typically use unilateral injections, either the side on which the headache is more painful or where there is more tenderness to palpation of the nerve. Ten (38%) indicated that they adjust injections based on immediate response and patient tolerance, and 11 (42%) usually inject both sides.

All respondents inject the greater occipital nerve (GON), with 23% injecting only the GON. Eighteen (69%) typically inject the lesser occipital nerve (LON). The supraorbital nerve (SON), trigger point injections (TPI), auriculotemporal nerve (ATN), and supratrochlear nerve (STN) are injected by 13(50%), 12(46%), 11(42%), and 9(35%), respectively. See Table 4 for frequency of injection by site and by combination.

Local tenderness, headache in the distribution of the nerve, and prior response to therapy were the most commonly selected indications for injection. The GON is routinely injected for headache beyond the occipital area.

Outcomes

Benefit—All respondents were queried about what they consider the minimum clinically-meaningful response to treatment with nerve blocks. For chronic migraine the most common answers were 50% reduction in headache frequency at 4 weeks ($n=17$, 41%) and 30% reduction in headache frequency at 4 weeks ($n=10$, 24%). For status migrainosus the most common answer was 50% decrease in severity ($n=17$, 41% if same).

Adverse effects—When all were asked about the possibility of nerve blocks causing central nervous system and cardiovascular complications from local anesthetic systemic toxicity (LAST), most ($n=26$, 63%) respondents indicated no concern. Ten respondents (24%) from 6 institutions indicated concern. Plans to minimize the risk of LAST included weight-based dosing of anesthetics, avoiding bupivacaine, formal training in the procedure, avoiding the occipital artery when injecting, and observation for a few minutes to make sure there were no immediate effects noted.

When all were asked about the possibility of side effects from corticosteroids, 15 (37%) indicated no concern. Nineteen (46%) respondents from 16 institutions reported concern. Strategies respondents use to minimize potential for these side effects included: avoidance of corticosteroids for most conditions and for frontal injections, using corticosteroids only every 3–6 months, limiting the dose of corticosteroid, and adjusting the treatment plan if side effects were observed.

Finally, respondents who perform nerve blocks were asked about strategies they use to reduce discomfort and anxiety. Most use distraction and relaxation techniques ($n=19$, 73%), while some used medications such as oral benzodiazepines ($n=7$, 27%), local anesthetic cream ($n=5$, 19%), local anesthetic spray ($n=4$, 15%), or ice ($n=1$, 4%). Two respondents (8%) mix bicarbonate with the local anesthetic[18].

Respondents' recommendations for future study

Thirty of 41 (73%) respondents indicated willingness to participate in a trial of nerve blocks for pediatric headache disorders. Chronic migraine ($n=12$, 29%) and status migrainosus ($n=9$, 22%) were identified as the preferred conditions for study, and most ($n=31$, 76%) preferred a study design in which nerve blocks are used as an adjunctive therapy. In terms of potential study design, respondents favored: 1) bilateral injections over unilateral 3.8:1, 2) injections without corticosteroids were favored 1.5:1, and 3) there was no clear preference between bupivacaine and lidocaine as the local anesthetic to be studied. Three respondents wrote in the suggestion to include additional injections such as LON, SON, and STN rather than just GON.

Discussion

Summary of Results & Comparison with the Available Literature

The results of this practice pattern survey indicate that the majority of pediatric headache specialists who responded to our survey perform or refer patients for nerve blocks for a variety of headache disorders in children. The proportion who perform nerve blocks, 63%, is similar to the proportion of those who reported performing nerve blocks in the adult practice pattern survey[11]. Respondents represented an estimated 50% of those in the Pediatric & Adolescent Section of the American Headache Society. Having a primary specialty of adult or child neurology and UCNS-certification in headache medicine were associated with increased likelihood of using peripheral nerve blocks. While it is possible that those who perform nerve blocks were more likely to respond to this survey, at a minimum 33 of the 82 members of the Section, perform or refer patients for nerve blocks. We received responses from 21 of the 54 (39%) UCNS-certified pediatric headache specialists (as of 2014)[15]. If we extrapolate that 39% response rate and assume an equal response rate from those who are and are not UCNS-certified, we would calculate that the total number of pediatric headache specialists is approximately 105 people. If these assumptions are correct, then 33/105, or approximately a third of pediatric headache specialists either perform or refer children for nerve blocks.

This survey demonstrated significant variability in the implementation of nerve blocks as a headache treatment. Respondents use nerve blocks for many different headache diagnoses. Consistent with the published pediatric case series, Chronic Migraine, New Daily Persistent Headache, and Post-Traumatic Headache are among the most frequent indications for nerve block[3–6]. The most common symptom prompting injection is local tenderness of the nerve. All respondents use lidocaine and bupivacaine, but in varying combinations and concentrations. While respondents tended to recommend a longer interval between injections if corticosteroid were used, there was variability in the use of repeated injections. There was also variability regarding injection location - respondents inject anywhere from 1–10 sites around the head in a single procedure session. This variability closely paralleled the results of the adult practice pattern survey from 2010[11]. With the exception of medication used, the practice patterns described here for pediatrics are within the recommendations of the expert consensus statements on use of nerve blocks and trigger point injections from the American Headache Society[12, 13].

In recent years there have been a few randomized studies of nerve blocks in adults with migraine and related headaches. The expert recommendation to use local anesthetics without corticosteroid for migraine is based on Ashkenazi's randomized study of bilateral greater occipital nerve blocks with trigger point injections, in which addition of triamcinolone added no benefit over combined lidocaine and bupivacaine for transformed (now called chronic) migraine in adults[19]. In a subsequent study, Dilli *et al.* compared unilateral or bilateral greater occipital nerve injections with bupivacaine + methylprednisolone versus saline + 0.25mL of 1% lidocaine in subjects with episodic and chronic migraine. They found no difference in the percentage of subjects with a 50% reduction in migraine days over four weeks, nor in any of the secondary outcome measures. The authors raised the possibility that

the small amount of lidocaine used in the placebo group could have had an active effect, but also questioned whether the benefit previously noted in case series and open-label studies could be due to placebo response[20]. Other authors have used different injection paradigms with saline placebo and found benefit. Inan *et. al.* utilized weekly injections over the greater occipital nerve for four weeks in subjects with chronic migraine, and demonstrated a greater decrease in headache days over the month in the bupivacaine-treated group[21]. Palamar compared ultrasound-guided unilateral greater occipital nerve injection with bupivacaine vs saline placebo in subjects with migraine without aura. Both groups reported immediate benefit, but the bupivacaine group reported continued drop in pain score on the treated side over 4 weeks[22]. Naja studied nerve stimulator-guided blockade of the greater and lesser occipital nerves, sometimes with the facial nerve, in subjects with cervicogenic headache; they found reduction in pain in the group blocked with lidocaine with epinephrine + bupivacaine + fentanyl + clonidine compared with saline placebo over a 2 week period [23]. The authors of each study attributed the benefit to the injection paradigm - repeated injections or use of stimulator or ultrasound to improve accuracy of injection. However, none of these studies formally assessed blinding of the subjects, and there is a real possibility of unblinding since local anesthetic causes numbness, but saline does not. Dilli advised that future studies use topical lidocaine before placebo injection to prevent unblinding[20]. There are no published studies utilizing GON block in status migrainosus, though there is a study of bilateral GON blocks for acute migraine in the ED which is currently enrolling[24].

The variability in response in adult trials highlights the need for controlled studies in children, since all studies to date have been case series. Dubrovsky *et. al.* reported a series of 62 GON blocks, sometimes with accompanying LON or SON blocks, using lidocaine with epinephrine in 28 children with a history of recent concussion who had daily headache despite rest and physical therapy. Ninety-three percent of subjects reported a good outcome, defined as headache improvement for at least 24 hours or sufficient improvement to request repeat nerve block. Sixty-one percent reported relief lasting for days to weeks, which was estimated to be 1–2 weeks based on time to request for repeat injection[5]. Seeger reported a series of 15 children who had unilateral or bilateral GON block with lidocaine and corticosteroid (either triamcinolone or methylprednisolone) an average of 5.6 months after concussion. At follow-up visit another 5.6 months later, 64% reported a reduction in headache frequency of at least 50%[6]. Similarly, 2 case series reported benefit for at least 62% of pediatric patients with chronic migraine following unilateral injection in the region of the greater occipital nerve with a mixture of lidocaine and methylprednisolone [3, 4]. The onset of benefit occurred at a mean of 4.7 days and lasted a mean of 5.4 weeks[3]. Given the longer duration of benefit described in the series which used corticosteroid, and the known shorter duration of action of local anesthetics in children[16], even if there is no benefit to addition of corticosteroids in adults, it may prove beneficial in children. Since all of these studies have been case series, and the rate of placebo response in acute headache treatment is particularly high in children[30], true placebo-controlled trials are needed.

Limitations

The survey response rate was approximately 50%. Because we used a distribution list without names we do not have any information on non-responders to the survey, and we do not know if any respondents were not members of the original distribution list. Even if all pediatric headache specialists who perform nerve blocks answered the survey, this still represents an estimated one-third of known pediatric headache specialists. The survey was sent only to the members of the AHS Pediatric & Adolescent Section so the results describe use among headache specialists, but does not account for use among other specialists such as concussion specialists.

Conclusion

This study demonstrated similar rates of use of nerve blocks and trigger point injections among respondents compared with the adult practice pattern survey from 2010[11]. Similar to that study, there was wide variability in the indications for injection, sites and frequency injected, and medications used. Given the demonstrated variability, and the interest among the group in further research, additional placebo-controlled studies should be done.

Based on the consensus of the respondents, the most likely patient to be studied would be a patient between the ages of 10 and 18 years with a diagnosis of Status Migrainosus or Chronic Migraine. Nerve block would most likely be performed over the bilateral greater occipital nerves with bupivacaine and/or lidocaine, with or without corticosteroids, as an adjunctive therapy. After an initial study tests whether there is benefit in the first paradigm, additional studies could systematically test whether there are increased benefits or decreased side effects with different medications, injection sites, and repeated injections, and in different patient groups. These studies would be clinically meaningful for pediatric headache, since 20–30% of patients are refractory to the available acute and preventive treatments[31–34], and additional therapies are needed.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Conflicts of Interest:

Dr. Szperka has received research funding from Pfizer, Miles for Migraine, and the Lynne Saligman League.

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Abbreviations

UCNS	United Council for Neurological Subspecialties
IQR	interquartile range
GON	greater occipital nerve
LON	lesser occipital nerve
SON	supraorbital nerve
TPI	trigger point injections
ATN	auriculotemporal nerve
STN	supratrochlear nerve
ZTN	zygomaticotemporal nerve

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Figure 1.
Indications for Nerve Block (also attached as PDF file)

Table 1

Characteristics of Survey Respondents

	Perform NB (n=26)	Refer for NB (n=7)	Do not use (n=7)/ No answer (n=1)	Comparisons (n=7)/ No answer (n=1) NS = p>0.05
New HA Patients <18yo per month: Median (IQR)	32.5 (20–76)	25.5 (15.5–67.5)	15.5 (10–30)	NS
Degree	NS			NS
MD/DO	19	5	6	
MD/DO, PhD	3	1	0	
MD/DO, MPH	1	0	0	
PhD (Psychology)	0	0	1	
CRNP	2	0	1	
PA	1	0	0	
Did not answer	0	1	0	
Primary Specialty	Perform vs No: p=0.01, others NS			NS
Child Neurology	22	6	4	
Adult Neurology	3	0	0	
General Pediatrics	0	0	2	
Family Practice/Headache	1	0	0	
Child Psychiary	0	0	1	
Pediatric Psychology	0	0	1	
Other, not specified	0	1	0	
UCNS Certified	Perform vs No: p=0.03, Refer vs No: p=0.041, other NS			NS
Yes	15	5	1	
No	11	2	7	
Practice Setting	NS			NS
Academic	18	4	2	
Hospital-based	5	2	3	
Private	3	0	3	
Military	0	1	0	

Medication(s) Used for Nerve Blocks: Respondents who perform nerve blocks universally use a local anesthetic, bupivacaine and/or lidocaine, but concentrations varied. About half of respondents add corticosteroid.

Table 2

	Alone	Methylprednisolone	Triamcinolone	Dexamethasone	Sodium Bicarbonate	Sum:
Lidocaine 1%	1	1				2
Lidocaine 2%	1	3				4
Bupivacaine 0.25%		2				2
Bupivacaine 0.5%	6		2		1	9
Bupivacaine 0.75%	1					1
Lidocaine 1% + Bupivacaine 0.25%		1				1
Lidocaine 1% + Bupivacaine 0.5%	2			1		3
Lidocaine 2% + Bupivacaine 0.25%	1		1			2
Lidocaine 2% + Bupivacaine 0.5%	1	1				2
Sum:	13	8	3	1	1	

Table 3

Minimum reported interval between injections

	Without corticosteroid	With corticosteroid
No limit	2	1
1–2 days	4	
3–6 days	1	
1–2 weeks	15	
3–4 weeks	7	9
5–6 weeks *	4	6
7–8 weeks		4
9–10 weeks		0
11+ weeks		13
No answer	8	8

* "5+" specified in question for "without corticosteroid"

Table 4

Frequency and Volume of Injections by Nerve and by Combination

	#Respondents who typically inject there (n=26)	% of Respondents who typically inject there	Average Volume of Injection (mL)
By Nerve:			
Greater Occipital Nerve (GON)	26	100	2.3
Lesser Occipital Nerve (LON)	18	69	1.4
Supraorbital Nerve (SON)	13	50	0.7
Trigger Point Injections (TPI)	12	46	0.8
Auriculotemporal Nerve (ATN)	11	42	0.9
Supratrochlear Nerve (STN)	9	35	0.6
Zygomaticotemporal (ZTN)	1	4	Not specified
By Combination:			
GON only	6	23	
GON+LON	4	15	
GON+LON+SON+STN+ATN	3	12	
GON+LON+SON+STN+ATN+TPI	3	12	
GON+LON+ATN+TPI	2	8	
GON+SON+STN+ATN+TPI	2	8	
GON+LON+SON	1	4	
GON+LON+SON+TPI	1	4	
GON+LON+SON+ATN+TPI	1	4	
GON+LON+SON+STN+TPI	1	4	
GON+LON+TPI	1	4	
GON+LON+SON+TPI+ZTN	1	4	