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A comparison of preference for and efficacy of tablet formulations of sumatriptan (50 mg and 100 mg), naratriptan (2.5 mg), rizatriptan (10 mg), and zolmitriptan (2.5 mg) in the acute treatment of migraine

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Abstract This randomized, multi-center, open-label, five-way crossover study was conducted to assess patients' preference for tablet formulations of sumatriptan (50 mg and 100 mg), naratriptan (2.5 mg), rizatriptan (10 mg), and zolmitriptan (2.5 mg) in the acute treatment of migraine and to identify determinants of preference. Patients treated one mild, moderate, or severe migraine with each triptan. The results show that sumatriptan 100 mg was significantly preferred over the random preference rate of 20% ($p<0.001$) whereas sumatriptan 50 mg, naratriptan, rizatriptan, and zolmitriptan were not. Patients' primary reason for preferring a medication was best relief of migraine pain, and the treatment that patients preferred corresponded to the medication that was most likely to confer for them a pain-free response 2 hours postdose. Across all patients, efficacy 2 hours postdose was comparable among triptans with the exception of naratriptan, which was slightly less effective than the other medications (pain-free response 2 hours postdose: 40% sumatriptan 100 mg, 37% sumatriptan 50 mg, 28% naratriptan 2.5 mg, 38% rizatriptan 10 mg, 36% zolmitriptan 2.5 mg). The medications were also similarly well-tolerated. These data demonstrate that information on patients' medication preference supplements and does not duplicate data from traditional efficacy measures. Patient preference data are useful in tailoring migraine therapy to the needs of the individual patient.

Key words Migraine · Headache · Preference · Sumatriptan · Naratriptan · Zolmitriptan · Rizatriptan · Triptan

Introduction

Practice guidelines for the management of migraine recommend engaging patients in managing their headaches by discussing treatment and medication preferences with them [1–3]. Data on patients' preferences for migraine medication can help to tailor therapy to the needs of the individual patient by providing patient-centered information supplemental to that obtained from traditional efficacy measures [3–5].

That preference data supplement rather than duplicate information from traditional efficacy measures is illustrated by the finding that preference for a migraine medication does not necessarily correspond with traditional endpoints such as headache relief [4, 5].

Patients' preference for migraine-specific therapy with the $5HT_{1B/1D}$ agonist triptans over non-specific therapies such as analgesics and nonsteroidal anti-inflammatory drugs is well established [6–8]. Patients' preference for

migraine-specific therapy over non-specific therapy is linked to the superior ability of migraine-specific therapy to confer rapid, effective pain relief with few doses [9–11]. While patients' preference for triptans over non-specific therapies is recognized, little is known about their preferences for specific triptans, several of which are now available in most countries [12].

The current study was designed to assess patients' preference for sumatriptan tablets 100 mg (often considered to be the gold-standard triptan tablet [13, 14] and available for the acute treatment of migraine in most countries in which triptans are marketed) and their preference for other commonly available tablet triptans including sumatriptan 50 mg, naratriptan 2.5 mg, rizatriptan 10 mg, and zolmitriptan 2.5 mg. Besides patient preference, traditional efficacy and tolerability measures were obtained in order to examine possible efficacy- and tolerability-related determinants of these preferences. The study employed an open-label, crossover design in which patients could take each triptan on an outpatient basis in a manner reflecting typical clinical use of the drugs.

Patients and methods

Patients ages 18 to 65 years from Canada, Finland, the Netherlands, Sweden, and the United Kingdom with a history of migraine with or without aura as defined by the International Headache Society criteria [15] were screened for study participation. To be enrolled, patients had to have a history of 1–6 self-reported mild, moderate, or severe migraines per month for at least 2 months prior to study entry. Patients were excluded if they had a history of poor response to triptans; if they had untreated diastolic blood pressure greater than 95 mmHg or systolic blood pressure greater than 160 mmHg; or if they had a history of cerebrovascular disease, cardiovascular disease, or ophthalmic, basilar, or hemiplegic migraine. Other exclusion criteria included use of a monoamine oxidase inhibitor within 2 weeks before the study and, in countries where the combination of a selective serotonin reuptake inhibitor and a triptan is not allowed, the need for a selective serotonin receptor inhibitor during the study.

Procedures

The protocol for this randomized, open-label, multicenter, five-way crossover study (GlaxoSmithKline protocol SUM40257) was approved by institutional review boards for each of the study sites. Patients randomized to one of 119 possible treatment sequences were instructed to treat, over a 6-month period, a migraine with each of the study triptans including sumatriptan 100 mg, sumatriptan 50 mg, naratriptan 2.5 mg, rizatriptan 10 mg, and zolmitriptan 2.5 mg. Patients thus treated 5 migraines with study medication administered according to the sequence to which they had been randomly assigned. A treatable migraine

attack was defined as one in which the patient did not use analgesics or antiemetics within 6 hours before the onset of migraine. Patients were instructed to take one dose of the drug at the beginning of migraine pain. Additional doses of study medication could be taken as recommended in the prescribing information for return of mild, moderate, or severe pain from 2 hours through 72 hours after initial complete relief (i.e. no pain) 2 hours postdose, but additional doses of study medication beyond the first dose could not be used for a new migraine, inadequate relief, or persistent migraine. Non-ergotamine, non-triptan rescue medication could be used for inadequate relief from 2 hours postdose onward. Patients on prophylactic migraine medication (except for ergots, methysergide, and propranolol) before the study could continue it at the same dose throughout the study.

The study included 6 clinic visits. During visit 1, patients were familiarized with use of a diary card to record headache severity and symptoms, dosing instructions, maximum daily doses as outlined in the product prescribing information, and options for rescue migraine treatment. At visits 1 through 5, patients received study medication for one migraine and were asked to return to the clinic within 4 days of the next migraine that they treated with study medication or, if no migraine occurred, within 4 weeks (±1 week) of the current visit-whichever occurred sooner. If a migraine had not occurred within 4 weeks (±1 week) of a visit, patients were withdrawn from the study.

Measures

For each migraine treated with study medication, patients recorded the pain severity (as none, mild, moderate, or severe) immediately before dosing and 2 hours postdose and any return of headache pain, use of rescue medication, or use of a second dose of study medication through 72 hours postdose. At each clinic visit, investigators queried patients regarding the occurrence of adverse events, defined as any untoward medical occurrence regardless of its suspected cause. During visit 6, patients were asked to indicate their medication preference with and without the use of their completed migraine diaries as memory aids. They were also asked to indicate (by picking from a list) a reason for their preference. (Results did not differ as a function of whether or not patients used their diary cards as memory aids, a finding that shows that patients' memory was not impaired in this study. Only data obtained when patients were not using memory aids are reported.)

The primary endpoint was the proportion of patients with a preference for sumatriptan 100 mg. Other endpoints included the proportion of patients with a preference for sumatriptan 50 mg, naratriptan 2.5 mg, rizatriptan 10 mg, or zolmitriptan 2.5 mg; the proportion of patients citing particular reasons for their preference; the proportion of patients with complete relief (i.e. no pain) 2 hours after dosing; the proportion of patients with sustained freedom from pain from 2 hours through 24 hours after dosing with no use of a second dose of study medication or rescue medication; the mean number of tablets used per migraine attack; the proportion of patients requiring rescue medication or a second dose of study medication through 72 hours postdose; and the proportion of patients reporting specific adverse events considered by the investigator to be possibly drug-related.

Table 1 Reasons for medication preference, for all patients with migraine and according to the preferred medication. Values are n (%) of patients

Reason	All patients (n=258)	Preferred medication				
		Sumatriptan 100 mg (n=85)	Sumatriptan 50 mg (n=21)	Naratriptan 2.5 mg (n=44)	Rizatriptan 10 mg (n=54)	Zolmitriptan 2.5 mg (n=54)
Best relief of migraine pain	80 (31)	33 (39)	7 (33)	9 (20)	16 (30)	15 (28)
Fastest relief of migraine pain	45 (17)	20 (24)	6 (29)	4 (9)	8 (15)	7 (13)
Best overall	44 (17)	13 (15)	3 (14)	9 (20)	12 (22)	7 (13)
Quickest return to normal function	17 (7)	4 (5)	1 (5)	3 (7)	4 (7)	5 (9)
Few or no side effects	13 (5)	1 (1)	0 (0)	4 (9)	3 (6)	5 (9)
Longest duration of action	8 (3)	3 (4)	0 (0)	3 (7)	1 (2)	1 (2)
Migraine did not return	7 (3)	1 (1)	0 (0)	4 (9)	1 (2)	1 (2)
Did not make me feel drowsy	5 (2)	1 (1)	0 (0)	1 (2)	2 (4)	1 (2)
Fewest doses needed for migraine relief	4 (2)	1 (1)	1 (5)	0 (0)	0 (0)	2 (4)
Best relief of other migraine symptoms	3 (1)	0 (0)	2 (10)	0 (0)	0 (0)	1 (2)
Other	3 (1)	2 (2)	0 (0)	0 (0)	0 (0)	1 (2)
No reason given	28 (11)	6 (7)	1 (5)	7 (16)	7 (13)	8 (15)

Statistical analyses

Power calculations revealed that 345 patients were necessary to confer 90% power to detect a 10% increase in preference for any one formulation from the null average of 20% (at the two-sided, 5% significance level).

P values assessing the difference in preference rate for each treatment versus the null preference rate of 20% were calculated using exact binomial inference. The preference analyses were conducted on data from patients who used each of the 5 study treatments and expressed a medication preference (i.e. the preference population).

Efficacy and tolerability data were summarized using descriptive statistics, but no formal statistical testing was performed. Efficacy and tolerability data were summarized for the intent-to-treat population, including all patients using at least one dose of study medication and returning evaluable data. Missing headache severity data were handled using a last-observation-carried-forward (LOCF) approach unless rescue medication was used prior to the missing assessment. In the latter case, a headache grade of "severe" (i.e. treatment failure) was assigned. To assess the relationship between freedom from pain and patients' preference, the proportion of patients pain-free 2 hours postdose as a function of preferred treatment was summarized.

Some of the efficacy and preference data were summarized for the subsets of patients who were triptan-naive prior to the study or who were not current triptan users when they enrolled in the study, but no formal statistical testing was performed.

Results

Of the 390 patients randomized to the study, most were white (>99%) women (83%). The mean age was 41.2 years (range, 18 to 65 years). Of these 390 patients, the 372 who treated at least one migraine with study medication comprised the intent-to-treat population for efficacy and tolerability analyses, and the 258 patients who treated a migraine with each of the 5 study medications and expressed a medication preference comprised the population for preference analyses.

Of the 372 patients in the intent-to-treat population, 297 completed the study. Of these, 49 patients who completed the study did not express a medication preference. Reasons for premature discontinuation included insufficient numbers of migraines (n=47), being lost to follow-up (n=8), withdrawn consent (n=6), adverse event (n=5), protocol violation (n=2), and other (miscellaneous) reasons (n=7).

The majority (76%) of the preference population was using a triptan before the start of the study; 69% were using at least one of the study medications. The percentages of patients in the preference population who at study entry used study medication(s) as current migraine therapy were 26% for sumatriptan tablets 100 mg; 10% for sumatriptan tablets 50 mg; 9% for naratriptan tablets 2.5 mg; 12% for rizatriptan tablets 10 mg; and 21% for zolmitriptan tablets 2.5 mg.
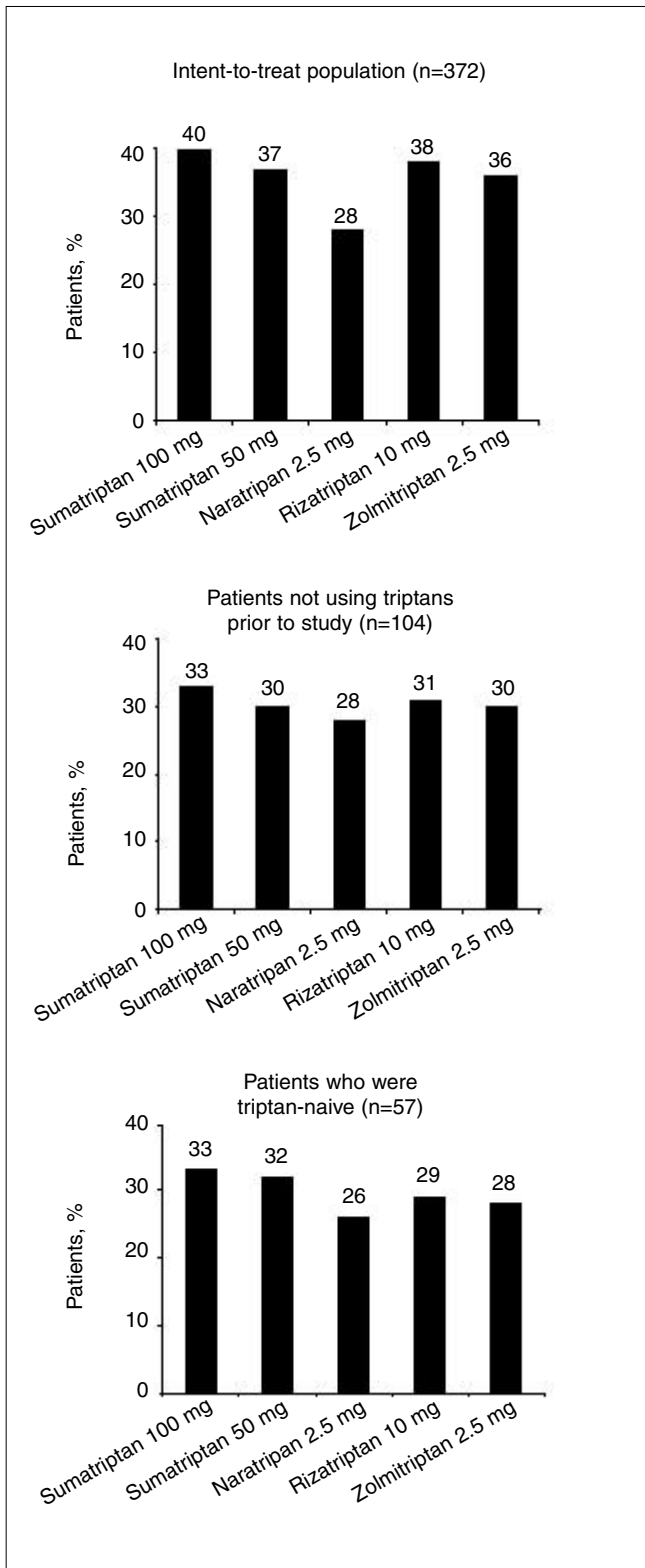
Intent-to-treat population (n=372)

Patients not using triptans prior to study (n=104)

Patients who were triptan-naive (n=57)

Fig. 1a-c Patients with pain-free response 2 hours after taking a triptan tablet for a migraine attack

Medication preference

Sumatriptan 100 mg was preferred by 33% of the preference population ($p<0.001$). It was the only triptan preferred significantly more often than the null proportion of 20% – that is, the preference rate expected if there were no difference in preference among the 5 study medications. The percentages of patients preferring other study medications were 8% for sumatriptan 50 mg ($p<0.001$ versus null proportion of 20%), 17% for naratriptan, 21% for rizatriptan, and 21% for zolmitriptan. No effect of period was observed ($p=0.81$). A similar pattern of results was obtained for the subset of patients who prior to study start were not using any triptan (n=57; differences not statistically tested).

Regardless of which triptan they preferred, patients most commonly selected *best relief of migraine pain* as the primary reason for preference (Table 1). Other commonly selected reasons for preference included fastest relief of migraine pain and best overall.

Efficacy

Baseline pain severity did not differ among medication groups. Across treatments, baseline pain was mild in 13%–16% of migraines; moderate in 53%–59% of migraines; and severe in 28%–34% of migraines. Sumatriptan tablets 50 mg or 100 mg, rizatriptan tablets, and zolmitriptan tablets were comparably effective at conferring freedom from pain (mild, moderate, or severe pain reduced to no pain) 2 hours postdose in the efficacy population (n=372), in the subset of patients not using triptans before the study (n=104), and in the subset that had never received triptans before the study (n=57; Fig. 1). In all of these groups, naratriptan tablets were slightly less effective than the other triptans at conferring freedom from pain 2 hours postdose. The medication that patients preferred corresponded to the one of the five that was most likely to confer for them a pain-free response 2 hours postdose (Table 2).

The percentages of patients with sustained freedom from pain 2 through 24 hours postdose with no use of a second dose of study medication or rescue medication as well as the percentages of patients using rescue medication or a second dose of study medication through 72 hours postdose were similar across medication groups (Table 3). The mean number of tablets used per migraine was also comparable among treatments (sumatriptan 100 mg, 1.7; sumatriptan 50 mg, 1.8; naratriptan, 1.5; rizatriptan, 1.7; and zolmitriptan, 1.6).

Table 2 Proportion of patients pain-free 2 hours after taking each of the study medications, by medication preference. Values are n (%) of patients

	Preferred medication				
	Sumatriptan 100 mg (n=85)	Sumatriptan 50 mg (n=21)	Naratriptan 2.5 mg (n=44)	Rizatriptan 10 mg (n=54)	Zolmitriptan 2.5 mg (n=54)
Study medication					
Sumatriptan 100 mg	49 (58)	12 (57)	13 (30)	14 (26)	21 (39)
Sumatriptan 50 mg	28 (33)	15 (71)	14 (32)	18 (34)[b]	24 (44)
Naratriptan 2.5 mg	22 (26)	4 (19)	24 (55)	12 (22)	12 (22)
Rizatriptan 10 mg	34 (40)[a]	6 (29)	11 (25)	28 (52)	22 (41)
Zolmitriptan 2.5 mg	28 (33)[a]	6 (29)	13 (30)	20 (37)	41 (65)

[a] Data available for 84 patients
[b] Data available for 53 patients

Table 3 Efficacy data. Results are expressed as percentages of patients

	Pain-free from 2 to 24 hours[a,b]	Rescue drug use over 72 hours	Second dose use over 72 hours	Headache return[a,c] over 72 hours
Naratriptan 2.5 mg	15	28	37	46
Sumatriptan 50 mg	18	30	44	50
Sumatriptan 100 mg	21	25	40	51
Rizatriptan 10 mg	18	27	40	56
Zolmitriptan 2.5 mg	18	23	39	53

[a] Based upon the number of attacks assessable for 24-hour overall efficacy
[b] Patients did not use rescue medication or additional doses of study medication
[c] Headache return is defined as complete pain resolution at 2 hours with no rescue medication use and with return of mild, moderate, or severe pain between 2 and 72 hours

Table 4 Adverse events associated with taking a triptan tablet for migraine. Only adverse events considered by the investigators to be possibly drug-related and occurring at an incidence of more than 4% in a treatment group are listed. Values are n (%) of patients

	Sumatriptan 100 mg (n=322)	Sumatriptan 50 mg (n=318)	Naratriptan 2.5 mg (n=322)	Rizatriptan 10 mg (n=320)	Zolmitriptan 2.5 mg (n=327)
Malaise and fatigue	49 (15)	20 (6)	26 (8)	31 (10)	29 (9)
Nausea	27 (8)	16 (5)	13 (4)	13 (4)	21 (6)
Pressure/tightness sensation	27 (8)	21 (7)	16 (5)	11 (3)	20 (6)
Dizziness	19 (6)	12 (4)	12 (4)	14 (4)	10 (3)
Temperature sensation	18 (6)	12 (4)	9 (3)	8 (3)	11 (3)

Tolerability

All treatments were well-tolerated. The most common adverse events considered by the investigator to be possibly drug-related were malaise-fatigue and nausea (Table 4).

Discussion

This study demonstrates that sumatriptan tablets 100 mg were significantly preferred over the random preference rate of 20%, whereas sumatriptan tablets 50 mg, naratriptan tablets 2.5 mg, rizatriptan tablets 10 mg, and zolmitriptan tablets 2.5 mg were not. Patients' primary reason for preferring a medication was *best relief of migraine pain*, and the treatment that patients preferred corresponded to the one of the five that was most likely to confer for them a pain-free response 2 hours postdose. These findings suggest that freedom from pain is a key determinant of patient preference. The data are consistent with results of other studies in which patients cited pain-free response as important in determining their satisfaction with migraine medication [9–11, 16]. In past studies as in the current study, patients also considered rapid pain relief to be important [7, 9–11, 16, 17]. In the current study, fastest relief of migraine pain was the second most common reason that patients preferred a medication.

This study is the first to use a randomized, crossover design to evaluate as a primary endpoint patients' preference for four triptans administered in tablet form. Results of other open-label studies that have compared patients' preferences for triptans are difficult to interpret in the context of the current study because of between-study differences in methodology and study design. For example, two studies assessed patients' preference for rizatriptan administered in an orally disintegrating form versus sumatriptan tablets 50 mg [18, 19]. Because rizatriptan and sumatriptan were administered in different forms in these studies, it is impossible to know whether the results reflect preference for medication forms or for the medications themselves. Another open-label, crossover study that assessed patients' preference for zolmitriptan tablets 2.5 mg versus sumatriptan tablets 50 mg did not randomize patients to treatment [20]. The nonrandomized design allows for the introduction of systematic differences between treatments arising from the order in which treatments are administered and makes these potential order (or period) effects impossible to quantify. The current study, a large, randomized, multicenter trial assessing patients' preference for tablet forms of triptans, did not share these shortcomings of previous studies.

Across all patients, efficacy 2 hours postdose was comparable among triptans with the exception of naratriptan, which was slightly less effective than the other medications. The medications were also similarly well-tolerated. These data are consistent with results of randomized, double-blind studies, which show that headache relief and pain-free rates 2 hours postdose do not significantly differ clinically among triptan tablets with the exception of naratriptan, although isolated significant differences have sometimes been observed [21, 22]. The finding that patients preferred one of the triptans (i.e. sumatriptan tablets 100 mg) despite comparable efficacy and tolerability across triptans on traditional measures shows that preference measures are not redundant with traditional measures and supports the inclusion of preference measures in assessments of migraine medication.

Although the pattern of efficacy results in the current study is consistent with those from previous clinical trials, the 2-hour pain-free response rates for all of the medications were slightly higher than in other migraine trials [21, 22]. This finding may be attributed to: (1) an influence of patients' expectations on their experiences of headache relief (as patients knew that each migraine would be treated with active study medication rather than inactive placebo); (2) the exclusion of patients known to have poor response to triptans; and (3) the protocol specification that patients treat mild, moderate, and severe pain rather than only moderate and severe pain, as is typical in previous migraine studies.

This study was unique in that it assessed efficacy of study medication through 72 hours postdose – that is, for the full duration of a migraine, which can last from 4 to 72 hours in adults. Most other studies have assessed efficacy only through a maximum of 24 hours postdose. The results of the current study extend previous findings by showing that tablet formulations of sumatriptan, rizatriptan, naratriptan, and zolmitriptan show similar efficacy through 72 hours after onset of a migraine.

While the efficacy of sumatriptan tablets 50 mg from 2 through 72 hours postdose was similar to that of the other medications, sumatriptan tablets 50 mg were preferred by fewer patients. In retrospect, this finding is not surprising. Sumatriptan was the only study medication assessed at two dosage strengths, 50 mg and 100 mg. Given a choice between two doses of the same medication, many patients are likely to choose the higher dose because higher is often assumed to be better even in the absence of differentiating factors. The influence of this "higher is better" assumption on the preference data was not evaluated in this open-label study in which patients knew which triptan and dosage they were receiving. The influence of the "higher is better" assumption might have been reduced significantly by employing a double-blind study design in which patients were not aware of the treatments or doses they received. In fact, in a previous double-blind, crossover assessment of

patients' preferences among the 25-mg, 50-mg, and 100-mg doses of sumatriptan tablets, similar percentages of patients preferred the 50-mg dose (31%) and the 100-mg dose (35%) [23]. In the double-blind study [23] as in the current one, the 50-mg and 100-mg doses were comparably well-tolerated and effective at relieving headache and associated symptoms. These observations considered in the context of the finding that pain-free response was a key determinant of patient preference in the current study supports the contention that the lower preference for sumatriptan tablets 50 mg in this study may be an artifact of patients' perception that a higher dose is better. A tendency for patients to indicate a preference for the triptan they were using when they entered the study is an additional potential confounder.

The open-label design thus imposed limitations on interpretation of the data. However, the open-label design is desirable from the perspective that it facilitates assessment of patient preference and medication efficacy in a situation closely approximating normal clinical use of the medications. For example, the open-label study design, unlike a double-blind study design, allowed administration of medications in their marketed forms without the need for blinding techniques such as encapsulation. The open-label design also permitted use of the medications in a manner as consistent as possible with their product labels. The findings extend results of controlled clinical trials by adding information obtained from "real-world" use of the triptans.

Besides the open-label design, possible unrepresentativeness of the preference population may affect interpretation of the results. Of the 372 patient who treated at least 1 migraine episode in this study, 258 treated with all 5 medications and expressed a preference. The preference analyses were based on the subset of patients, which may have differed from the larger sample of 372 in ways that may have affected efficacy, tolerability, or preference. In a similar vein, the exclusion from the study of patients known not to respond well to triptans renders these data unrepresentative of migraine patients at large.

In conclusion, this study demonstrates that sumatriptan tablets 100 mg were significantly preferred over the random preference rate of 20% while sumatriptan tablets 50 mg, naratriptan tablets 2.5 mg, rizatriptan tablets 10 mg, and zolmitriptan tablets 2.5 mg were not. Pain-free response 2 hours postdose was an important determinant of patients' preference. Sumatriptan tablets 50 mg and 100 mg, rizatriptan, and zolmitriptan conferred similar efficacy with respect to pain-free response 2 hours postdose as well as other efficacy measures through 72 hours after the onset of migraine whereas naratriptan appeared to be slightly less effective than the other treatments. These data demonstrate that measures of patients' preference supplement and are not redundant with information derived from traditional efficacy measures. Patient preference data are useful in helping to tailor migraine therapy to the needs of the individual patient.

References

1. Bigal ME, Lipton RB (2003) Acute treatment of migraine headache. Curr Treat Options Neurol 5:423–430
2. Dowson AJ, Sender J, Lipscombe S et al (2003) Establishing principles for migraine management in primary care. Int J Clin Pract 57:493–507
3. Rapoport AM, Tepper SJ, Bigal ME, et al (2003) The triptan formulations: how to match patients and products. CNS Drugs 17:431–447
4. Dahlöf C (1999) How to assess patient preference of migraine treatments. Cephalalgia 24:2–5
5. Dahlöf C (2001) Assessing patient preference in migraine treatment. Cephalalgia 21:791–795
6. Boureau F, Chazot G, Emile J et al (1995) Comparison of subcutaneous sumatriptan with usual acute treatments for migraine. French Sumatriptan Study Group. Eur Neurol 35:264–269
7. Luciani RJ, Osterhaus JT, Gutterman DL (1995) Patient preferences for migraine therapy: subcutaneous sumatriptan compared with other medications. J Fam Pract 41:147–152
8. Powers C, Szeto S, Pangtay D et al (2000) Evaluation of migraineurs' preferences for naratriptan over conventional first-line agents. Arch Fam Med 9:753–758.
9. Lipton RB, Stewart WF (1999) Acute migraine therapy: do doctors understand what patients with migraine want from therapy? Headache 39[Suppl 2]:S20–S26
10. Lipton RB, Hamelsky SW, Dayno JM (2002) What do patients with migraine want from acute migraine treatment? Headache 1:3–9
11. MacGregor EA, Brandes J, Eikermann A (2003) Migraine prevalence and treatment patterns: the global Migraine and Zolmitriptan Evaluation survey. Headache 43:19–26
12. Dodick DW, Silberstein S, Dahlöf CG (2002) Is there a preferred triptan? Headache 42:1–7
13. Goadsby PJ (1999) The scientific basis of medication choice in symptomatic migraine treatment. Can J Neurol Sci 3:S20–S26
14. Goadsby PJ, Lipton RB, Ferrari MD (2002) Migraine-current understanding and treatment. N Engl J Med 346:257–270

15. Headache Classification Committee of the International Headache Society (1988) Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Cephalalgia 7:1–96

16. Davies GM, Santanello N, Lipton R (2000) Determinants of patient satisfaction with migraine therapy. Cephalalgia 20:554–560

17. Caro G, Caro JJ, O'Brien JA et al (1998) Migraine therapy: development and testing of a patient preference questionnaire. Headache 38:602–607

18. Loder E, Brandes JL, Silberstein S et al (2001) Preference comparison of rizatriptan ODT 10-mg and sumatriptan 50-mg tablet in migraine. Headache 41:745–753

19. Pascual J, Bussone G, Hernandez JF et al (2001) Comparison of preference for rizatriptan 10-mg wafer versus sumatriptan 50-mg tablet in migraine. Eur Neurol 45:275–283

20. Pascual J, Munoz R, Leira R (2001) An open preference study with sumatriptan 50 mg and zolmitriptan 2.5 mg in 100 migraine patients. Cephalalgia 21:680–684

21. Ferrari MD, Roon KI, Lipton RB et al (2001) Oral triptans (serotonin 5-HT(1B/1D) agonists) in acute migraine treatment: a meta-analysis of 53 trials. Lancet 358:1668–1675

22. Dahlöf CG, Dodick D, Dowson AJ et al (2002) How does almotriptan compare with other triptans? A review of data from placebo-controlled clinical trials. Headache 42:99–113

23. Salonen R, Ashford EA, Gibbs M et al (1999) Patient preference for oral sumatriptan 25 mg, 50 mg, or 100 mg in the acute treatment of migraine: a double-blind, randomized, crossover study. Sumatriptan Tablets S2CM11 Study Group. Int J Clin Pract Suppl 105:16–24