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REVIEW

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Patients' preference for triptans and other medications as a tool for assessing the efficacy of acute treatments for migraine

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Abstract Oral triptans are effective and well tolerated acute treatments for migraine, but clinical differences between them are small and difficult to measure in conventional clinical trials. Patient preference assesses a global measure of efficacy and tolerability, and may be a more sensitive means of distinguishing between these drugs. In a series of studies, patients consistently expressed a clear preference for triptans over their usual non-triptan acute medications, e.g., analgesics and ergotamine. Direct comparator studies of patient preference with oral triptans showed that patients could distinguish between different triptans, and between different formulations of the same triptan. Patients could even distinguish between the three oral doses of sumatriptan. The most frequently provided reasons for preference were speed of response and overall effectiveness. Patient preference is a sensitive clinical trial endpoint and physicians should consider using it when reviewing the efficacy of acute migraine medications.

Key words Migraine • Triptans • Acute treatment • Patient preference • Patient satisfaction

Introduction

Oral triptans (5-hydroxytryptamine-1B/1D receptor agonists) are effective and well tolerated acute treatments for migraine [1, 2]. However, direct comparator trials and systematic reviews indicate that differences between oral triptans are relatively small [3–5]. The standard clinical trial endpoint of headache relief [6] may be relatively insensitive and not relevant to everyday clinical practice [7]. There are also issues of study design and encapsulation of certain formulations that may reduce the clinical applicability of some study results [8]. Meta-analyses may be rather blunt measures of efficacy, better reflecting placebo response rather than active response [9]. Therefore, other measures of efficacy need much greater study [10].

Because patients are treated on an individual basis, the more important question is not which triptan is best relative to another, but whether the chosen triptan provides the outcome desired by the patient and healthcare provider. A measure that evaluates the patient's subjective judgement of the efficacy and tolerability of therapy may be a more sensitive measure of efficacy than the standard endpoints. Patient preference evaluates a global measure of the clinical profile, encompassing efficacy, speed of onset of action, tolerability, consistency of response, ease of use and feelings of wellbeing on an individual basis [5]. Using patient preference and satisfaction data may be one approach to comparing the trip-

tans that provides a more real-life perspective [11, 12]. The International Headache Society (IHS) guidelines for controlled trials of migraine treatments state that the global evaluation of migraine medications by patients is a clinically relevant measure [13].

Many triptan studies have reported patients' overall evaluation of their migraine treatments. This article reviews these data, from three types of patient preference study: comparisons of triptans *vs.* patients' usual non-triptan treatments, direct comparisons of different triptans; and comparisons of different formulations or doses of the same triptan. We also review the methodological robustness of the studies for study design and symmetry in the groups compared, and in blinding techniques.

Comparing triptans with non-triptan medications

These comparisons were conducted in two ways. Firstly, a large meta-analysis was conducted to capture data on patients' satisfaction with their usual acute medications before they entered clinical studies. Secondly, a series of patient preference studies compared triptans with patients' usual non-triptan medications.

Meta-analysis of sumatriptan clinical studies

A meta-analysis was conducted to investigate patients' satisfaction with their usual acute migraine medications before entering 10 UK clinical studies with sumatriptan [14]. In all studies there were assessments of acute medications taken for the migraine attacks and their efficacy.

The proportions of patients rating each of the drug categories as ineffective/poor/reasonable and good/excellent were calculated, and 95% confidence intervals constructed for the proportions using the normal approximation (Table 1).

Overall, the majority of patients (88%) who used sumatriptan as their usual migraine medication rated it as good or excellent. In contrast, only 38% of patients who usually used ergotamine, 25% of those who normally used paracetamol/codeine/buclizine, 23% of those who used aspirin/metoclopramide and 19% of those who used paracetamol/metoclopramide rated these medications as good or excellent.

Patient preference studies (Table 2)

Sumatriptan

A prospective, multicentre, open-label, 2-month crossover study compared patients' preference for subcutaneous sumatriptan 6 mg with their usual acute migraine treatments [15]. Single and combination analgesics were used by 49% of patients, ergotamine by 24%, non-steroidal anti-inflammatory drugs (NSAIDs) by 19% and dihydroergotamine (DHE) by 7%. At the end of the study, 85% of patients expressed a preference for subcutaneous sumatriptan, 10% preferred their usual treatments and 5% had no preference ($p<0.001$). Some of the comparisons in this study necessitated asymmetric comparison of formulations, i.e., injection *vs.* tablet.

Table 1 Patients' (n=3378) assessment of acute migraine treatments in the meta-analysis of sumatriptan *vs*. usual acute treatments [14]

Medication	Patient rating, % (95% confidence interval[a])		Number of patients
	Ineffective/poor/reasonable	Good/excellent	
Sumatriptan	12 (6–17)	88 (83–94)	688
Ergotamine	62 (53–71)	38 (29–47)	249
Paracetamol/codeine/buclizine	75 (71–79)	25 (21–29)	530
Aspirin/metoclopramide	77 (69–85)	23 (15–31)	110
Paracetamol/metoclopramide	81 (77–85)	19 (15–23)	307
Ibuprofen	83 (78–88)	17 (12–22)	233
Paracetamol/codeine	88 (85–92)	12 (8–15)	355
Aspirin	90 (86–94)	10 (6–14)	210
Co-proxamol	91 (87–95)	9 (5–13)	166
Paracetamol	97 (96–98)	3 (2–4)	530

[a]Approximate 95% confidence intervals are given, the exact confidence coefficients may be lower

Table 2 Summary of studies comparing patients' preference for triptans *vs*. their usual non-triptan acute treatments for migraine

Triptan and dose	Patients, %		
	Preference for triptan	Preference for usual non-triptan therapy	No preference
Sumatriptan subcutaneous 6 mg [15] (*n*=217)	85	10	5
Sumatriptan oral 50 mg [16] (*n*=402)	73	18	9
Sumatriptan oral 50 mg [18] (*n*=29)	69	16	14
Naratriptan oral 2.5 mg [19] (*n*=115)	63	27	10
Triptans [22] (*n*=663)	52*	21*	9

*18% of patients preferred to use both a triptan and an analgesic to treat individual migraine attacks

A large, open-label, 4-attack observational study compared patients' preference for and satisfaction with oral sumatriptan 50 mg with those for their usual non-triptan prescription or over-the-counter therapy (OTC) (mostly non-narcotic analgesics and NSAIDs) [16, 17]. At the end of the study, 73% of patients expressed a preference for sumatriptan, and only 18% preferred their usual therapy. The most common reasons given for preferring sumatriptan were effective pain relief (98% of patients), restored ability to function (93%), requirement for fewer doses (93%), relief of migraine-associated symptoms (89%), rapid onset of efficacy (86%), no tired feelings (85%) and fewer side effects (81%). Significantly more patients were satisfied with sumatriptan as compared with their usual therapies ($p<0.001$) and with the overall quality of their medical care when it included sumatriptan ($p<0.001$).

An open-label, observational, multi-attack preference study in US primary care clinical practice allowed patients not using triptans to switch to oral sumatriptan 50 mg to treat their migraine attacks [18]. At baseline, patients were mostly using NSAIDs and other simple analgesics (69%), OTC or prescription combination therapies (28%) and narcotics (10%), with the majority (76%) being dissatisfied with their non-triptan therapies. At the end of the study 69% of patients expressed a preference for sumatriptan, 16% for their previous therapy and 14% had no preference. The main reasons given for preferring sumatriptan were speed of relief and overall effectiveness (69% and 30% of patients, respectively). Use of sumatriptan correlated with a reduction in unscheduled physician visits, emergency room visits and hospitalisations for migraine.

Naratriptan

An open-label study conducted in US primary care assessed migraine patients' satisfaction with and preference for oral naratriptan 2.5 mg compared with their previous non-triptan therapies (simple analgesics (59%) combination products (46%) and narcotics (13%)) [19]. After three treated attacks, more patients were satisfied with naratriptan than with their previous therapies (75% *vs.* 47%), and 63% preferred naratriptan, 27% their non-triptan therapy and 10% expressed no preference. The main reasons for preferring naratriptan were effective pain relief (86% of patients) and restoration of ability to function (81%).

Zolmitriptan

An open-label, multicentre study of 112 patients treating 281 migraine attacks assessed efficacy, safety and patient acceptance, of oral zolmitriptan 2.5 mg [20]. At the end of the study, 78% of patients stated that zolmitriptan was superior to their previously used abortive treatments (analgesics and NSAIDs).

Rizatriptan

An open-label, single-attack crossover study compared migraine patients' (*n*=216) satisfaction with two formulations of oral rizatriptan 10 mg (conventional tablet and

orally disintegrating tablet [ODT]) over their previous non-triptan medications [21]. The study reflected normal clinical practice, with all patients being triptan naïve. At the end of the study, more than twice as many patients taking rizatriptan reported that they were 'very' or 'somewhat satisfied' with the medication compared with their previous non-triptan medications ($p<0.05$). In all studies in which the ODT preparations are compared with conventional tablets, there is an asymmetry in comparison groups.

Overall preference for triptans *vs.* analgesics

A study conducted in US secondary care assessed the choice of acute migraine medications in patients who had been prescribed triptans in the past [22]. Patients were asked whether they currently preferred to use triptans or analgesics (OTC, prescription simple and combination analgesics, and prescription narcotics). Fifty-two percent of the patients preferred using a triptan alone, 21% analgesics alone, 18% triptans plus analgesics for the same attack and 9% had no preference. The main reasons for preferring triptans over analgesics were efficacy (62% of patients), reduced side effects (8%) and a combination of the two (30%).

Studies comparing the different triptans (Table 3)

Almost all preference studies that compare the triptans use sumatriptan as the comparator drug. There is a relative lack of comparative clinical data between the newer triptans, both for conventional efficacy measures and for patient preference and satisfaction measures.

Sumatriptan *vs*. zolmitriptan

An open-label, crossover study investigated patients' preferences for oral sumatriptan 50 mg *vs.* oral zolmitriptan 2.5 mg tablets [23]. Patients treated three attacks with each triptan then completed a preference questionnaire. At the end of the study, 42 patients (44%, CI 34–58%) preferred zolmitriptan, 27 patients (29%, CI 20–38%) preferred sumatriptan and 25 patients (27%, CI 18–36%) reported no preference. The reasons given in the 69 patients who expressed a preference between the triptans were: faster onset of action (73%), longer duration of effect (39%), fewer adverse events (35%) and lower price (13%). Only one-quarter of the patients reported that sumatriptan and zolmitriptan were equivalent. These results are similar to those from the open-label, multicentre study conducted described earlier [20], in which 45% of patients assessed zolmitriptan as superior to sumatriptan and 36% assessed sumatriptan as superior to zolmitriptan.

Sumatriptan *vs*. rizatriptan

A randomised, double-blind, triple-dummy, parallel group study compared rizatriptan tablets 5 mg and 10 mg, sumatriptan 100 mg and placebo in 1268 patients treating a single migraine attack [24]. Headache relief rates after rizatriptan 10 mg were reported to be somewhat higher than those after sumatriptan. However, patient satisfaction data were also collected, and showed no significant differences between the rizatriptan and sumatriptan groups [25].

Two studies have compared patient preference for sumatriptan conventional tablets with the ODT formulation of rizatriptan. A multicentre, randomised, open-label, two-period crossover study compared the proportion of patients who preferred rizatriptan ODT 10 mg to sumatriptan 50 mg

Table 3 Summary of studies comparing patient preference for different triptans

Comparison	Patients, %		
	Preference for sumatriptan	Preference for comparator triptan	No preference
Sumatriptan oral 50 mg *vs.* zolmitriptan oral 2.5 mg [23] (n=94)	29	44	27
Sumatriptan oral *vs.* zolmitriptan oral 2.5 mg [20] (n=112)	36	45	19
Sumatriptan oral 50 mg *vs.* rizatriptan ODT 10 mg [12] (n=374)	43	57*	0
Sumatriptan oral 50 mg *vs.* rizatriptan ODT 10 mg [27] (n=481)	36	64**	0

*$p<0.01$; **$p\leq0.001$

tablet [12]. Patients treated two migraine attacks, one each with rizatriptan and sumatriptan. Significantly more patients preferred rizatriptan to sumatriptan at the end of the study (57% *vs.* 43%, $p<0.01$). A *post hoc* analysis of the data indicated that patients tended to prefer the triptan that supplied the most rapid pain relief [26].

A second randomised, open-label, crossover study assessed patient preference for rizatriptan ODT 10 mg *vs.* sumatriptan 50 mg conventional tablet to treat a single migraine attack [27]. At the end of the study, significantly more patients preferred rizatriptan to sumatriptan (64.3% *vs.* 35.7%, $p\leq0.001$). Faster headache relief was the most important reason given for preference of both drugs (46.9% and 43.4% of patients preferring rizatriptan and sumatriptan, respectively). Two hours after treatment of the attacks, significantly more patients receiving rizatriptan than sumatriptan (73.3% *vs.* 59.0%, $p\leq0.001$) reported satisfaction (completely, very or somewhat satisfied) with therapy and found the drug convenient (very convenient, convenient or somewhat convenient) to take (87.2% *vs.* 76.3%, $p\leq0.001$). The crossover design of these two studies helps mitigate the asymmetry of the comparison groups.

Sumatriptan *vs.* eletriptan

A randomised, double-blind, parallel-group study compared the efficacy, safety and tolerability of oral eletriptan 20, 40 and 80 mg *vs.* oral sumatriptan 100 mg and placebo for a single migraine attack ($n=692$) [28]. Patients were asked at a follow-up visit to rate the acceptability of their study medication compared to medications used previously. Patients rated sumatriptan (64%) and all doses of eletriptan (64%, 74% and 84% for the 20, 40 and 80 mg doses, respectively) more acceptable than placebo (32%), with the highest acceptability rate reported for eletriptan 80 mg. Sumatriptan, but not eletriptan was encapsulated for blinding purposes in the study, making the comparative groups asymmetric, a potential bias that was maximised by the parallel group design. Encapsulation of sumatriptan has been shown to negatively affect its pharmacokinetics and absorption [8].

Sumatriptan *vs.* almotriptan

A double-blind, multicentre, randomised, parallel-group study ($n=1173$) compared treatment satisfaction, functional status and health-related quality of life (HRQOL) of patients treated with oral almotriptan 12.5 mg or oral sumatriptan 50 mg for one migraine attack [29]. The patients reported similar satisfaction with pain relief associated with the two drugs, but were significantly less bothered with side effects from almotriptan than sumatriptan ($p=0.016$). Improvements in functional status and HRQOL were similar in the two treatment groups. Both almotriptan and sumatriptan were encapsulated for blinding purposes in the study, thus no bias based on blinding was present.

Multiple comparisons between the triptans

A *post hoc* comparison was made of patients' overall satisfaction with treatment from five double-blind, placebo-controlled studies in which rizatriptan 10 mg conventional tablets were compared with other oral triptans [30]. Three studies compared rizatriptan with sumatriptan (rizatriptan 10 mg *vs.* sumatriptan 100 mg in a parallel-group study, $n=916$; rizatriptan 10 mg *vs.* sumatriptan 50 mg in two crossover studies, $n=1599$). One study compared rizatriptan 10 mg with naratriptan 2.5 mg ($n=502$) and another compared rizatriptan 10 mg with zolmitriptan 2.5 mg ($n=701$), both being parallel-group studies. Patients reported their satisfaction with treatment on a seven-point scale 2 h after treatment. Significantly more patients receiving rizatriptan 10 mg than all the other triptans reported that they were 'completely' or 'very' satisfied: rizatriptan *vs.* sumatriptan 100 mg (33% *vs.* 26%, $p<0.05$); rizatriptan *vs.* sumatriptan 50 mg (40% *vs.* 35%, $p<0.05$); rizatriptan *vs.* naratriptan 2.5 mg (33% *vs.* 19%, $p<0.01$); and rizatriptan *vs.* zolmitriptan 2.5 mg (38% *vs.* 30%, $p<0.05$).

A randomised, multicentre, open-label, five-way crossover study assessed patient preference for sumatriptan 50 mg and 100 mg, naratriptan 2.5 mg, zolmitriptan 2.5 mg and rizatriptan 10 mg ($n=372$) [11, 31]. Patients were randomised to treat one migraine attack with each of the five triptans in sequence, in a total of 119 possible treatment sequences. Patients assessed which triptan they preferred at the end of the study. The results showed that sumatriptan 100 mg was preferred by 33% of patients, significantly higher than the random preference rate of 20% ($p<0.001$). Preference rates for sumatriptan 50 mg, naratriptan, rizatriptan and zolmitriptan were not significantly higher than the random preference rate. The 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 h post-dose.

A second small study ($n=28$) conducted in clinical practice compared patient preference to sumatriptan 50 or 100 mg, naratriptan 2.5 or 5 mg and zolmitriptan 2.5 or 5 mg

[32]. Patients were randomised to treat two attacks with each of the triptans. At the end of the study, 50% of patients preferred sumatriptan, 32% naratriptan and 18% zolmitriptan.

A retrospective audit of patient data from a secondary care headache clinic (*n*=176) investigated the pattern of preference for and switching between sumatriptan, naratriptan and zolmitriptan in clinical practice [33]. Most patients (68%) had switched between triptans at least once in the previous 2 years. No triptan showed a significantly higher level of preference, although there were some gender differences. Women tended to prefer zolmitriptan over the other two triptans and switched between triptans more often than men. Most patients reporting migraine with aura used sumatriptan to treat their attacks.

In a retrospective review of 386 patients who used subcutaneous sumatriptan and were switched to a different triptan or formulation, 19.5% returned to subcutaneous sumatriptan [34]. For the other triptans/formulations, the percentages for returning were: sumatriptan 25 mg, 7.8%; sumatriptan 50 or 100 mg, 42.3%; sumatriptan nasal spray, 17.7%; zolmitriptan, 17.6%; rizatriptan, 16.5%; naratriptan, 9.4%. Of those who used more than three triptans or formulations, the last triptan used was: sumatriptan, 29.5%; zolmitriptan, 31.8%; rizatriptan, 25.0%; naratriptan, 12.5%. Different formulations of sumatriptan were used by 129 subjects (33.4%). Of the patients who used sumatriptan as the first triptan and switched to other triptans, sumatriptan was also the last triptan used by 53.8% of them. This study involved asymmetries of formulations in assessing patient preferences and reasons for switching behaviours.

A Swedish study has investigated migraine patients' preference for zolmitriptan 5 mg nasal spray compared with that for oral triptans in a realistic clinical practice setting (*n*=83) [35]. Patients, 96% of whom were currently using a triptan (usually oral), were invited to try zolmitriptan nasal spray 5 mg for up to six migraine attacks, to see if efficacy could be improved. Initial data indicated that 76% of patients wanted to continue to use zolmitriptan nasal spray. The main reasons for this preference were a fast onset of action, a lack of adverse events and only needing to take a single dose. The first reason may be intrinsic to a nasal spray compared to a tablet; the other two reasons should not have been impacted by asymmetry of compared formulations.

Studies comparing different formulations of the same triptan

Sumatriptan, zolmitriptan and rizatriptan are available in different formulations, and a small number of studies have compared patient preference for different formulations or doses of these drugs.

Sumatriptan

An open, multicentre, randomised, crossover study with an optional open, parallel-group extension (*n*=385) investigated the efficacy, safety and patient preference for oral sumatriptan 100 mg and subcutaneous sumatriptan 6 mg formulations [36]. Patient preference for the subcutaneous formulation more than doubled from the pre-treatment phase to the end of the crossover period in those patients previously naïve to sumatriptan. During the optional parallel-group phase of the study, 38% of patients chose to use both sumatriptan formulations, treating some attacks with subcutaneous sumatriptan and some with oral sumatriptan. The main reason for choosing subcutaneous sumatriptan was speed of relief, while convenience was the major reason for choosing the tablet.

An open, randomised, three-attack crossover study compared patient opinions of oral sumatriptan 100 mg with subcutaneous sumatriptan 6 mg (*n*=124) [37]. At the end of the study, patient opinion was more often positive after subcutaneous sumatriptan than after oral sumatriptan. Subcutaneous sumatriptan was significantly more effective than oral sumatriptan, but more adverse events were reported following the subcutaneous formulation.

A telephone survey was conducted in 707 patients who had used sumatriptan tablets and/or injection long-term for migraine in clinical practice [38]. Results showed that more patients preferred the tablets over the injection, but that more patients reported that the injection was the most effective formulation. The most frequently given reasons for the injection being superior were efficacy and speed of action. The most frequently given reasons for the tablet being superior were fewer side effects and lack of experience with other formulations. Most patients (94%) reported that sumatriptan was superior to their previous non-triptan therapies.

An open, randomised, crossover study compared patient preference for sumatriptan 50 mg tablets and sumatriptan 20 mg nasal spray [39]. Patients, who were naïve to both formulations, preferred both formulations approximately equally (47% for tablets and 53% for nasal spray). Patients preferred the nasal spray for its fast onset of action and the tablets for their convenience.

Rizatriptan

Patients (*n*=367) taking part in a clinical study of rizatriptan were allowed to continue open-label treatment with both the film-coated tablet and ODT formulations for a 6-month period [40]. At the end of the study, 51.2% preferred the ODT and 48.8% the film-coated tablet.

Although individual patients had strong reasons for preferring one formulation over the other, no group preferences were detected for the individual formulations.

Comparing the different doses of oral sumatriptan

A multinational, randomised, double-blind, crossover, 8-week study was conducted to assess patient dose preference, efficacy and tolerability for oral sumatriptan 25, 50 and 100 mg in the acute treatment of migraine [41]. Patients (n=257) were randomised to treat three migraine attacks, using a different dose for each. At the end of the study, 34.6% of patients preferred the 100 mg dose, 30.4% the 50 mg, 20.6% the 25 mg dose and 12.8% expressed no preference. Efficacy and speed of action were the two main reasons given for preferring the higher doses. However, adverse events were rarely given as a reason for preferring the lower doses of sumatriptan. Although the 50 mg dose has been shown to have the optimal benefit:risk ratio of the formulations [42], some patients clearly preferred a higher dose.

Discussion

Patients' assessments of their preference for, and satisfaction with, their migraine treatments may be measures of clinical efficacy relevant to real-life clinical practice, taking into account both efficacy and tolerability. We now have considerable clinical data on patient preference, allowing the evaluation of the triptans and other acute migraine treatments.

All studies of preference [14–19, 22] and satisfaction [17, 19–21] for triptans compared with patients' usual non-triptan medications have demonstrated the superiority of the triptans. Patients' most commonly given reasons for preferring triptans were effective relief, speed of relief, restored ability to function and fewer side effects [16, 18, 19, 22]. These are significant results, as some controlled clinical trials have shown that sumatriptan was not superior to rapid-release tolfenamic acid [43], paracetamol/domperidone [44], aspirin/metoclopramide [45, 46], isometheptene/paracetamol/dichlorphenazone [47] and paracetamol/aspirin/caffeine [48]. In contrast, a controlled clinical trial showed that oral sumatriptan 100 mg was significantly superior to oral ergotamine plus caffeine [49]. These results indicate that patient preference may be a more sensitive measure of efficacy and clinical utility than conventional clinical trial endpoints.

Relatively few clinical trials have directly compared patients' preference for individual triptans, and all included sumatriptan [12, 20, 23, 27]. Data from these four studies were broadly similar (Table 3), some patients preferring one triptan and some the other, even though fewer patients preferred sumatriptan to the comparator triptan in all cases. The main reason for preference was a faster onset of action. Other reasons given included a longer duration of effect and fewer adverse events. Each of these reasons was given for all the triptans. The data in these preference studies were broadly similar to those from randomised, double-blind comparator studies between these triptans [50, 51].

Five further studies compared patient preference between multiple triptans. Two studies showed that more patients preferred oral sumatriptan 50 or 100 mg than other oral triptans [11, 31, 32]. Two studies showed few differences between several oral triptans [33, 34], and a further study showed that patients preferred zolmitriptan nasal spray over oral triptans [35]. Different study designs and the patients' initial triptan may have biased the results from these studies.

Patient satisfaction data from double-blind, controlled clinical trials showed similar trends to those reported above for patient preference. Patients were equally satisfied with the efficacy of sumatriptan 100 mg and rizatriptan 10 mg [24, 25], sumatriptan 100 mg and eletriptan 20 and 40 mg [28] and sumatriptan 50 mg and almotriptan 12.5 mg [29]. In a review of five clinical trials, the proportions of patients preferring sumatriptan, zolmitriptan and rizatriptan were not markedly different from each other [30].

Patients were also able to express preferences between different formulations of the triptans [36–38, 40], although these data are biased due to the asymmetry of the treatment groups. Patients could even distinguish between different doses of oral sumatriptan [41].

There are several limitations to the available analyses of patient preference and satisfaction. The preference and satisfaction studies were open-label and bias could therefore occur. Patients may have had previous access to one or more of the drugs being investigated. It is interesting in that in all cases, the triptan preferred most was that of the company sponsoring the study. In the double-blind, controlled studies analysed, the patient preference/satisfaction endpoint was a secondary or *post hoc* endpoint, and may therefore not have been powered appropriately. Studies involving different formulations are biased by the asymmetries previously discussed in this article. The solution is to conduct double-blind, controlled studies with patient preference as the primary endpoint.

Clinical implications

When given the opportunity, most migraine patients are able to distinguish between triptans and non-triptan acute

therapies for migraine, and between the individual oral triptans. This sophisticated individual preference is not usually seen in controlled parallel design clinical trials, where differences between the oral triptans, when statistically present, are small [4]. Unfortunately for the physician, patients have very individual preferences for triptans that are not predictable in advance. Patients clearly prefer triptans to simple and combination analgesics and ergotamine, and thus triptans should be a first- line alternative in most migraine patients [52]. In assessing individual triptans in clinical practice, patients are looking for a therapy that provides rapid and effective relief of the migraine [18, 19, 22, 38] and are willing to switch between triptans to achieve this goal [33].

Patient preference is clearly a sensitive overall measure of the clinical profile of triptans, encompassing both efficacy and tolerability. In reviewing migraine patients, the physician should elicit their preference for, and satisfaction with, their current medication before making further treatment decisions. There is no need to change the patients' medication if they are satisfied with their current medications and prefer them to those used previously. When the patient's medication is changed, at review the physician should ask about the patient's preference for the new medication. In addition, physicians should also take into consideration patients' preference for a specific delivery system. For patients with attacks of varying severity and/or lifestyle needs, more than one formulation may be appropriate.

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