



Getting started on Tosymra[®]

Learn more about our savings program and Instructions for Use.





Instructions for Use

Watch by scanning the QR code.

Read on pages 4-7.

Please see complete Important Safety Information on pages 8-11 and accompanying full Prescribing Information, including Patient Information.



What is Tosymra®?

Tosymra® is a fast-acting prescription medicine used to treat acute migraine with or without aura in adults.

Some people experience migraine pain relief in as little as 10 minutes with just one mist-like spray (13% of people compared to 5% for placebo).*1-3

After two hours, 57% of people had migraine pain relief compared to 21% for placebo.*1-3

*Time to onset and degree of pain relief varies by patient. Efficacy of Tosymra® is based on relative bioavailabiity to subcutaneous sumatriptan at a dose of 4 mg.

Tosymra* is not used to prevent or decrease the number of migraines you have or to treat cluster headaches.

Do not take Tosymra* if you have hemiplegic migraines or basilar migraines. If you are not sure if you have these types of migraines, ask your health care provider.

These are not the only reasons to not take Tosymra[®].

Tosymra[®] is an acute migraine treatment that offers:



- Single-use device, no priming required
- Fine, mist-like spray
- Discreet size

Please see Important Safety Information on pages 8-11 and accompanying full Prescribing Information, including Patient Information.

Get Tosymra® for free*

Eligible patients pay \$0* per prescription and get free home delivery through Blink Pharmacy Plus.

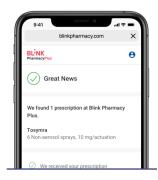
*Restrictions and quantity limits apply. Visit Tosymra.com to view complete program terms and conditions. Medicare, Medicaid, and other federal and state healthcare program patients are not eligible.



How does it work?

Blink Pharmacy Plus fills your Tosymra® prescription in three easy steps.

Your doctor sent your Rx to Blink Pharmacy Plus. View your Rx below: bhprx.com/p/f9a5571a-f3 Reply STOP to Unsubscribe. Patient Support: (844) 976-3109





Step 1:Blink Pharmacy Plus will contact you

A Blink Pharmacy Plus agent will call from **1-844-976-3109** or text you from **22425** with a confidential link to see your profile.

Step 2: Check out online

Blink Pharmacy Plus works with your insurance to apply all eligible savings. They'll let you know when it's time to check out and confirm your delivery address.

Step 3: Arrives at your door

Your prescription will be delivered to your door for free each month.

Questions or need help?

If you have questions or need help, please contact Blink Pharmacy Plus at 1-844-976-3109.



Proper administration is important when using Tosymra®

Read the Instructions for Use below, or visit Tosymra.com/how-to-use to watch the video.

INSTRUCTIONS FOR USE

About Tosymra®

Read this Instructions for Use before you start using Tosymra® and each time you get a refill. There may be new information. This information does not take the place of talking to your healthcare provider about your medical condition or treatment. If you have any questions about Tosymra®, ask your healthcare provider or pharmacist.

- Only 1 device is needed to deliver a full dose (See Figure A).
- The device gives a single spray that should be delivered into 1 nostril.
- Never use more than 1 device or dose into more than 1 nostril.

Important information

Keep Tosymra[®] and all medicines out of reach of children.

- **Do not** remove the device from its packaging until ready to use.
- **Do not** test the spray or press the plunger before giving a dose into the nostril.
- **Do not** use after the expiration date has passed.

Storage information

- The device should be stored at room temperature between 68° to 77°F (20° to 25°C).
- **Do not** store in the refrigerator or freezer.
- Always keep the device in the sealed blister package until time of use.

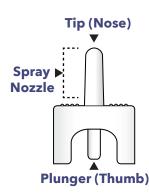


Figure A

Prepare for administration

1. Gently Blow Your Nose

While sitting upright, gently blow your nose to clear your nostrils (See Figure B).



Figure B

2. Remove 1 Device From Carton

Remove only 1 device from the carton (See Figure C). Do not use more than 1 device to get your dose.



Figure C

3. Check the Expiration Date on Back of Blister Package

Check the expiration date on the back of the blister package (See Figure D). Do not use if the expiration date has passed. Throw away the expired device in the household trash if the expiration date has passed.

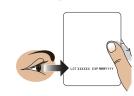


Figure D

4. Remove Device From Blister Package

Peel off the paper backing completely from the blister package. Flip the blister package onto your hand to remove the device from its packaging (See Figure E).



Figure E

5. Check the Expiration Date on the Device

Check the expiration date on the device (See Figure F). Do not use the device if the expiration date has passed. Throw away the expired device in the household trash if the expiration date has passed.



Figure F

Please see Important Safety Information on pages 8-11 and accompanying full Prescribing Information, including Patient Information.



Administer the dose

6. Close 1 Nostril

Gently press 1 nostril with your finger to keep it closed (See Figure G).



Figure G

7. Place Spray Nozzle in Open Nostril

Hold the device upright between your thumb and first 2 fingers (See Figure H).







Figure H

Figure I

8. Tilt Head Back Slightly

While keeping the device in your nose, tilt your head back slightly (See Figure J). This will allow the medicine to go into your nasal passage without dripping out.



Figure J

9. Deliver the Dose

As you slowly breathe through your nose, firmly press the plunger all the way up to release the dose (See Figure K). Note: The plunger is stiff, so make sure to press firmly.



After administering the dose

10. Remove Device and Breathe Gently for 10 to 20 Seconds

Remove the device from your nostril. While keeping your head upright, gently breathe in through your nose and breathe out through your mouth. Repeat this for 10 to 20 seconds (See Figure L). It is normal for you to feel liquid in your nose or at the back of your throat. Do not look down, because the medicine may drip from your nose. Do not breathe in deeply.

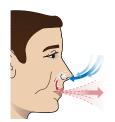




Figure L

11. Dispose of the Used Device

Throw away the used device and its packaging into your household trash (See Figure M).

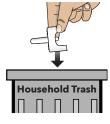


Figure M

You have received your full dose if you have:

- Used 1 device
- Given 1 spray into 1 nostril

Please see Important Safety Information on pages 8-11 and accompanying full Prescribing Information, including Patient Information.



IMPORTANT SAFETY INFORMATION

Tosymra® can cause serious side effects, including heart attack and other heart problems, which may lead to death. Stop Tosymra and get emergency medical help if you have any signs of heart attack:

- discomfort in the center of your chest that lasts for more than a few minutes or goes away and comes back
- severe tightness, pain, pressure, or heaviness in your chest, throat, neck, or jaw
- pain or discomfort in your arms, back, neck, jaw, or stomach
- shortness of breath with or without chest discomfort
- breaking out in a cold sweat
- nausea or vomiting
- feeling lightheaded

Tosymra is not for people with risk factors for heart disease (high blood pressure or cholesterol, smoking, overweight, diabetes, family history of heart disease) unless a heart exam is done and shows no problem.

Do not use Tosymra if you have:

- history of heart problems
- narrowing of blood vessels to your legs, arms, stomach, or kidney (peripheral vascular disease)

- uncontrolled high blood pressure
- severe liver problems
- hemiplegic or basilar migraines. If you are not sure if you have these, ask your healthcare provider.
- had a stroke, transient ischemic attacks (TIAs), or problems with blood circulation
- taken any of the following medicines in the last 24 hours: almotriptan, eletriptan, frovatriptan, naratriptan, rizatriptan, ergotamines, or dihydroergotamine. Ask your provider if you are not sure if your medicine is listed above.
- are taking certain antidepressants, known as monoamine oxidase (MAO)-A inhibitors or it has been 2 weeks or less since you stopped taking a MAO-A inhibitor. Ask your provider for a list of these medicines if you are not sure.
- an allergy to sumatriptan or any ingredient in Tosymra

Tell your provider about all of your medical conditions and medicines you take, including vitamins and supplements.

Tosymra can cause dizziness, weakness, or drowsiness. If so, do not drive a car, use machinery, or do anything where you need to be alert.

Tosymra may cause serious side effects including:

- changes in color or sensation in your fingers and toes
- sudden or severe stomach pain, stomach pain after meals, weight loss, nausea or vomiting, constipation or diarrhea, bloody diarrhea, fever



- cramping and pain in your legs or hips, feeling of heaviness or tightness in your leg muscles, burning or aching pain in your feet or toes while resting, numbness, tingling, or weakness in your legs, cold feeling or color changes in one or both legs or feet
- increased blood pressure including a sudden severe increase even if you have no history of high blood pressure
- medication overuse headaches from using migraine medicine for 10 or more days each month. If your headaches get worse, call your provider.
- serotonin syndrome, a rare but serious problem that can happen in people using Tosymra, especially when used with anti-depressant medicines called SSRIs or SNRIs.
 Call your provider right away if you have: mental changes such as seeing things that are not there (hallucinations), agitation, or coma; fast heartbeat; changes in blood pressure; high body temperature; tight muscles; or trouble walking.
- hives (itchy bumps); swelling of your tongue, mouth, or throat
- seizures even in people who have never had seizures before

The most common side effects of Tosymra include:

tingling, dizziness, feeling warm or hot, burning feeling, feeling of heaviness, feeling of pressure, flushing, feeling of tightness, numbness, application site (nasal) reactions, abnormal taste, and throat irritation.

Tell your provider if you have any side effect that bothers you or does not go away. These are not all the possible side effects of Tosymra. For more information, ask your provider.

This is the most important information to know about Tosymra but is not comprehensive. For more information, talk to your provider and read the **Patient Information** and **Instructions for Use**. You can also visit www.tonixpharma.com or call 1-888-869-7633.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Tosymra is a prescription medicine used to treat acute migraine headaches with or without aura in adults.

Tosymra is not used to treat other types of headaches such as hemiplegic or basilar migraines or cluster headaches.

Tosymra is not used to prevent migraines. It is not known if Tosymra is safe and effective in children under 18 years of age.

10 11

Learn more at Tosymra.com



References

- 1. Tosymra [package insert]. Chatham, NJ: Tonix Medicines: 2019.
- 2. Mathew NT, et al. Dose ranging efficacy and safety of subcutaneous sumatriptan in the acute treatment of migraine. US Sumatriptan Research Group. Arch Neurol. 1992;49(12):1271-1276.
- 3. Wendt J, et al. A randomized, double-blind, placebo-controlled trial of the efficacy and tolerability of a 4-mg dose of subcutaneous sumatriptan for the treatment of acute migraine attacks in adults. Clinical Therapeutics. 2006;28(4):517-526.





HIGHLIGHTS OF PRESCRIBING INFORMATION These highlights do not include all the information needed to use TOSYMRA® safely and effectively. See full prescribing information for TOSYMRA®.

TOSYMRA® (sumatriptan) nasal spray Initial U.S. Approval: 1992

-- INDICATIONS AND USAGE -----

TOSYMRA is a serotonin (5-HT_{1B/1D}) receptor agonist (triptan) indicated for the acute treatment of migraine with or without aura in adults (1)

- Limitations of Use: · Use only if a clear diagnosis of migraine has been established (1)
- Serotonin syndrome: Discontinue Not indicated for the preventive TOSYMRA if occurs (5.7)
- treatment of migraine (1) Not indicated for the treatment of cluster headache (1)
- --- DOSAGE AND ADMINISTRATION ---
- Single dose of 10 mg of nasal spray
- Maximum dose in a 24-hour period: 30 mg; separate doses by at least one hour (2)
- -- DOSAGE FORMS AND STRENGTHS --

Nasal Spray, 10 mg (3)

- ----- CONTRAINDICATIONS ------· History of coronary artery disease or
- coronary vasospasm (4) Wolff-Parkinson-White syndrome or
- other cardiac accessory conduction pathway disorders (4) · History of stroke, transient ischemic attack, or hemiplegic or basilar
- migraine (4) • Peripheral vascular disease (4) • Ischemic bowel disease (4)
- Uncontrolled hypertension (4)
- · Recent (within 24 hours) use of another 5-HT₁ agonist (e.g., another triptan) or of an ergotaminecontaining medication (4)
- Concurrent or recent (past 2 weeks) use of monoamine oxidase-A inhibitor (4)
- Hypersensitivity to sumatriptan (angioedema and anaphylaxis seen)
- Severe hepatic impairment (4)
- --- WARNINGS AND PRECAUTIONS --- Myocardial ischemia/infarction and Prinzmetal's angina: Perform cardiac
- evaluation in patients with multiple cardiovascular risk factors (5.1)
- **FULL PRESCRIBING INFORMATION:** CONTENTS*

8 USE IN SPECIFIC POPULATIONS Pregnancy

Arrhythmias: Discontinue TOSYMRA

tightness, pressure, or heaviness:

myocardial ischemia; evaluate for

coronary artery disease in patients

Cerebral hemorrhage, subarachnoid

hemorrhage, and stroke: Discontinue

Generally, not associated with

Chest/throat/neck/jaw pain,

TOSYMRA if occurs (5.4)

Gastrointestinal ischemia and

· Medication overuse headache:

Increase in blood pressure:

Hypersensitivity reactions:

Seizures: Use with caution in

seizure threshold (5.10)

· Local irritation: Burning and

abnormal taste can occur (5.11)

Most common adverse reactions

injection were tingling, dizziness/

sensation, feeling of heaviness,

tightness, and numbness (6.1)

----- ADVERSE REACTIONS ------

(≥5% and > placebo) with sumatriptan

vertigo, warm/hot sensation, burning

pressure sensation, flushing, feeling of

Additional common adverse reactions

with TOSYMRA include application

To report SUSPECTED ADVERSE

or FDA at 1-800-FDA-1088 or

www.fda.gov/medwatch.

cause fetal harm (8.1)

patient labeling.

REACTIONS, contact Upsher-Smith

Laboratories, LLC at 1-855-899-9180

--- USE IN SPECIFIC POPULATIONS ---

Pregnancy: Based on animal data, may

Revised 2/2021

See 17 for PATIENT COUNSELING

INFORMATION and FDA-approved

site reactions, dysgeusia, and throat

reactions, peripheral vasospastic

Detoxification may be necessary

Hypertensive crisis can occur (5.8)

Angioedema and anaphylaxis can

patients with epilepsy or a lowered

reactions: Discontinue TOSYMRA if

if occurs (5.2)

at high risk (5.3)

occurs (5.5)

occur (5.9)

irritation. (6.1)

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- 3 DOSAGE FORMS AND STRENGTHS 4 CONTRAINDICATIONS
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- Other Vasospasm Reactions Medication Overuse Headache Serotonin Syndrome Increase in Blood Pressure Hypersensitivity Reactions
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- Selective Serotonin Reuptake

FULL PRESCRIBING INFORMATION 1 INDICATIONS AND USAGE

TOSYMRA is indicated for the acute treatment of migraine with or without aura

in adults. <u>Limitations of Use:</u> · Use only if a clear diagnosis of migraine has been established. If a patient has

no response to the first migraine attack treated with TOSYMRA, reconsider the

- diagnosis before TOSYMRA is administered to treat any subsequent attacks. • TOSYMRA is not indicated for the preventive treatment of migraine.
- TOSYMRA is not indicated for the treatment of cluster headache. 2 DOSAGE AND ADMINISTRATION

The recommended dose of TOSYMRA is 10 mg given as a single spray in one nostril.

The maximum cumulative dose that may be given in a 24-hour period is 30 mg, with doses of TOSYMRA separated by at least 1 hour. TOSYMRA may also be given at least 1 hour following a dose of another sumatriptan product.

3 DOSAGE FORMS AND STRENGTHS

Single-dose nasal spray device delivering 10 mg of sumatriptan. 4 CONTRAINDICATIONS

TOSYMRA is contraindicated in patients with:

• Ischemic coronary artery disease (CAD) (angina pectoris, history of myocardial

- infarction, or documented silent ischemia) or coronary artery vasospasm, including Prinzmetal's angina [see Warnings and Precautions (5.1)]. · Wolff-Parkinson-White syndrome or arrhythmias associated with other cardiac
- accessory conduction pathway disorders [see Warnings and Precautions (5.2)]. • History of stroke or transient ischemic attack (TIA) or history of hemiplegic or basilar
- migraine because these patients are at a higher risk of stroke [see Warnings and
- Peripheral vascular disease [see Warnings and Precautions (5.5)]. • Ischemic bowel disease [see Warnings and Precautions (5.5)].
- Uncontrolled hypertension [see Warnings and Precautions (5.8)]. • Recent use (i.e., within 24 hours) of ergotamine-containing medication, ergot-type

medication (such as dihydroergotamine or methysergide), or another

5-hydroxytryptamine₁ (5-HT₁) agonist [see Drug Interactions (7.1, 7.3)].

- Concurrent administration of a monoamine oxidase (MAO)-A inhibitor or recent (within 2 weeks) use of an MAO-A inhibitor [see Drug Interactions (7.2) and Clinical
- Pharmacology (12.3)]. Hypersensitivity to sumatriptan (angioedema and anaphylaxis seen) [see Warnings and Precautions (5.9)].
- Severe hepatic impairment [see Clinical Pharmacology (12.3)].
- 5.1 Myocardial Ischemia, Myocardial Infarction, and Prinzmetal's Angina
- **5 WARNINGS AND PRECAUTIONS**

The use of TOSYMRA is contraindicated in patients with ischemic or vasospastic CAD.

There have been rare reports of serious cardiac adverse reactions, including acute myocardial infarction, occurring within a few hours following administration of

sumatriptan. Some of these reactions occurred in patients without known CAD. 5-HT₁ agonists, including TOSYMRA, may cause coronary artery vasospasm (Prinzmetal's angina), even in patients without a history of CAD. Perform a cardiovascular evaluation in triptan-naive patients who have multiple cardiovascular risk factors (e.g., increased age, diabetes, hypertension, smoking, obesity, strong family history of CAD) prior to receiving TOSYMRA. If there is

evidence of CAD or coronary artery vasospasm, TOSYMRA is contraindicated. For patients with multiple cardiovascular risk factors who have a negative cardiovascular evaluation, consider administering the first dose of TOSYMRA in a medically supervised setting and performing an electrocardiogram (ECG) immediately following administration of TOSYMRA. For such patients, consider periodic cardiovascular evaluation in intermittent long-term users of TOSYMRA. Life-threatening disturbances of cardiac rhythm, including ventricular tachycardia and ventricular fibrillation leading to death, have been reported within a few hours following

the administration of 5-HT₁ agonists. Discontinue TOSYMRA if these disturbances occur.

TOSYMRA is contraindicated in patients with Wolff-Parkinson-White syndrome or arrhythmias associated with other cardiac accessory conduction pathway disorders. 5.3 Chest, Throat, Neck, and/or Jaw Pain/Tightness/Pressure Sensations of tightness, pain, pressure, and heaviness in the precordium, throat, neck, and jaw commonly occur after treatment with sumatriptan injection and are usually non-cardiac in origin. However, perform a cardiac evaluation if these patients are at high

cardiac risk. The use of TOSYMRA is contraindicated in patients shown to have CAD and

those with Prinzmetal's variant angina. 5.4 Cerebrovascular Events Cerebral hemorrhage, subarachnoid hemorrhage, and stroke have occurred in patients treated with 5-HT₁ agonists, and some have resulted in fatalities. In a number of cases, it appears possible that the cerebrovascular events were primary, the 5-HT₁ agonist having been

administered in the incorrect belief that the symptoms experienced were a consequence of migraine when they were not. Also, patients with migraine may be at increased risk of certain cerebrovascular events (e.g., stroke, hemorrhage, TIA). Discontinue TOSYMRA if a cerebrovascular event occurs. Before treating headaches in patients not previously diagnosed with migraine or in patients who present with atypical symptoms, exclude other potentially serious neurological

conditions. TOSYMRA is contraindicated in patients with a history of stroke or TIA. 5.5 Other Vasospasm Reactions TOSYMRA may cause non-coronary vasospastic reactions, such as peripheral vascular

ischemia, gastrointestinal vascular ischemia and infarction (presenting with abdominal pain and bloody diarrhea), splenic infarction, and Raynaud's syndrome. In patients who experience symptoms or signs suggestive of non-coronary vasospasm reaction following the use of any 5-HT₁ agonist, rule out a vasospastic reaction before receiving additional TOSYMRA. Reports of transient and permanent blindness and significant partial vision loss have been

reported with the use of 5-HT₁ agonists. Since visual disorders may be part of a migraine attack, a causal relationship between these events and the use of 5-HT₁ agonists have not been clearly established 5.6 Medication Overuse Headache

Overuse of acute migraine drugs (e.g., ergotamine, triptans, opioids, or combination of these drugs for 10 or more days per month) may lead to exacerbation of headache (medication overuse headache). Medication overuse headache may present as migrainelike daily headaches, or as a marked increase in frequency of migraine attacks. Detoxification of patients, including withdrawal of the overused drugs, and treatment of withdrawal symptoms (which often includes a transient worsening of headache) may be

5.7 Serotonin Syndrome Serotonin syndrome may occur with TOSYMRA, particularly during co-administration with selective serotonin reuptake inhibitors (SSRIs), serotonin norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), and MAO inhibitors [see Drug *Interactions (7.4)].* Serotonin syndrome symptoms may include mental status changes (e.g., agitation, hallucinations, coma), autonomic instability (e.g., tachycardia, labile blood

pressure, hyperthermia), neuromuscular aberrations (e.g., hyperreflexia, incoordination), and/or gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea). The onset of symptoms usually occurs within minutes to hours of receiving a new or a greater dose of a serotonergic medication. Discontinue TOSYMRA if serotonin syndrome is suspected.

5.8 Increase in Blood Pressure

Significant elevation in blood pressure, including hypertensive crisis with acute impairment of organ systems, has been reported on rare occasions in patients treated with 5-HT₁ agonists, including patients without a history of hypertension. Monitor blood pressure in patients treated with TOSYMRA. TOSYMRA is contraindicated in patients with uncontrolled hypertension.

5.9 Hypersensitivity Reactions

Hypersensitivity reactions, including angioedema and anaphylaxis, have occurred in patients receiving sumatriptan. Such reactions can be life threatening or fatal. In general, anaphylactic reactions to drugs are more likely to occur in individuals with a history of sensitivity to multiple allergens. TOSYMRA is contraindicated in patients with a history of hypersensitivity reaction to sumatriptan.

5.10 Seizures Seizures have been reported following administration of sumatriptan. Some have occurred in patients with either a history of seizures or concurrent conditions predisposing to seizures. There are also reports in patients where no such predisposing factors are

apparent. TOSYMRA should be used with caution in patients with a history of epilepsy or conditions associated with a lowered seizure threshold. 5.11 Local Irritation Local irritative symptoms were reported in approximately 46% of patients treated with

TOSYMRA in an open-label trial which allowed repeated use of TOSYMRA over the course of 6 months. Of these, the most common local irritative symptoms were application site reaction (36%), dysgeusia (21%), and throat irritation (5%). Approximately 0.5% of the cases were reported as severe. 6 ADVERSE REACTIONS

The following serious adverse reactions are described below and elsewhere in the labeling:

- Myocardial Ischemia, Myocardial Infarction, and Prinzmetal's Angina [see Warnings and Precautions (5.1)] Arrhythmias [see Warnings and Precautions (5.2)]
- · Chest, Throat, Neck, and/or Jaw Pain/Tightness/Pressure [see Warnings and
- Precautions (5.3) • Cerebrovascular Events [see Warnings and Precautions (5.4)]
- Other Vasospasm Reactions [see Warnings and Precautions (5.5)]
- Medication Overuse Headache [see Warnings and Precautions (5.6)]
- Serotonin Syndrome [see Warnings and Precautions (5.7)] • Increase in Blood Pressure *[see Warnings and Precautions (5.8)]*
- Hypersensitivity Reactions [see Contraindications (4), Warnings and Precautions (5.9)] • Seizures [see Warnings and Precautions (5.10)]
- Local Irritation [see Warnings and Precautions (5.11)]
- 6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared with rates in the clinical trials of another drug and may not reflect the rates observed in practice. Adverse Reactions in Placebo-Controlled Trials with Sumatriptan Injection

Table 1 lists adverse reactions that occurred in 2 placebo-controlled clinical trials in patients with migraine (Studies 2 and 3) following either a single 6 mg dose of sumatriptan injection or placebo. Only reactions that occurred at a frequency of 2% or more in groups treated with sumatriptan injection 6 mg and that occurred at a frequency greater than the placebo group are included in Table 1. Table 1: Adverse Reactions in Pooled Placebo-Controlled Trials in Patients

with Migraine (Studies 2 and 3) Sumatriptan Injection

Adverse Reaction	6 mg Subcutaneous (n = 547) %	Placebo (n = 370) %
Atypical sensations	42	9
	14	3
Tingling Warm/hot sensation	11	3 4
	7	
Burning sensation		<1
Feeling of heaviness	7	1
Pressure sensation	7	2
Feeling of tightness	5	<1
Numbness	5	2
Feeling strange	2	<1
Tight feeling in head	2	<1
Cardiovascular		
Flushing	7	2
Chest discomfort	5	1
Tightness in chest	3	<1
Pressure in chest	2	<1
Ear, nose, and throat		
Throat discomfort	3	<1
Discomfort: nasal cavity/sinuses	2	<1
Miscellaneous		
Jaw discomfort	2	0
Musculoskeletal		
Weakness	5	<1
Neck pain/stiffness	5	<1
Myalgia	2	<1
Neurological		
Dizziness/vertigo	12	4
Drowsiness/sedation	3	2
Headache	2	<1
Skin		
Curating		4

The incidence of adverse reactions in controlled clinical trials was not affected by gender or age of the patients. There were insufficient data to assess the impact of race on the incidence of adverse reactions.

Adverse Reactions in Studies with TOSYMRA In an open-label study that was designed to evaluate the local tolerability of TOSYMRA, repeated use of TOSYMRA was allowed over the course of 6 months. In this study, local

irritative symptoms were reported in approximately 46% of patients treated with TOSYMRA, the most common of which were application site reactions (e.g., burning sensations in the nose), dysgeusia, and throat irritation [see Warnings and Precautions **6.2 Post-marketing Experience** The following adverse reactions have been identified during post-approval use of

sumatriptan tablets, sumatriptan nasal spray, and sumatriptan injection. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

(12.3)].

Cardiovascular: Hypotension, palpitations. Neurological: Dystonia, tremor.

7 DRUG INTERACTIONS 7.1 Ergot-Containing Drugs Ergot-containing drugs have been reported to cause prolonged vasospastic reactions.

medications (like dihydroergotamine or methysergide) and TOSYMRA within 24 hours of each other is contraindicated. 7.2 Monoamine Oxidase-A Inhibitors MAO-A inhibitors increase systemic exposure by 2-fold. Therefore, the use of TOSYMRA in patients receiving MAO-A inhibitors is contraindicated [see Clinical Pharmacology

Because these effects may be additive, use of ergotamine-containing or ergot-type

7.3 Other 5-HT₁ Agonists Because their vasospastic effects may be additive, coadministration of TOSYMRA and

other 5-HT₁ agonists (e.g., triptans) within 24 hours of each other is contraindicated. 7.4 Selective Serotonin Reuptake Inhibitors/Serotonin Norepinephrine Reuptake **Inhibitors and Serotonin Syndrome**

Cases of serotonin syndrome have been reported during co-administration of triptans and SSRIs, SNRIs, TCAs, and MAO inhibitors [see Warnings and Precautions (5.7)]. **8 USE IN SPECIFIC POPULATIONS**

8.1 Pregnancy Risk Summary

Data from a prospective pregnancy exposure registry and epidemiological studies of pregnant women have not detected an increased frequency of birth defects or a consistent

pattern of birth defects among women exposed to sumatriptan compared with the general

Human Data

population (see Data). In developmental toxicity studies in rats and rabbits, oral administration of sumatriptan to pregnant animals was associated with embryo lethality, fetal abnormalities, and pup mortality. When administered by the intravenous route to pregnant rabbits, sumatriptan was embryo lethal (see Data). In the U.S. general population, the estimated background risk of major birth defects and of miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. The reported rate of major birth defects among deliveries to women with

migraine ranged from 2.2% to 2.9% and the reported rate of miscarriage was 17%, which were similar to rates reported in women without migraine. Clinical Considerations Disease-Associated Maternal and/or Embryo/Fetal Risk: Several studies have suggested that women with migraine may be at increased risk of preeclampsia during pregnancy. <u>Data</u>

The Sumatriptan/Naratriptan/Treximet (sumatriptan and naproxen sodium) Pregnancy

Registry, a population-based international prospective study, collected data for sumatriptan from January 1996 to September 2012. The Registry documented outcomes of 626 infants and fetuses exposed to sumatriptan during pregnancy (528 with earliest exposure during the first trimester, 78 during the second trimester, 16 during the third

trimester, and 4 unknown). The occurrence of major birth defects (excluding fetal deaths and induced abortions without reported defects and all spontaneous pregnancy losses) during first-trimester exposure to sumatriptan was 4.2% (20/478 [95% ČI: 2.6% to 6.5%]) and during any trimester of exposure was 4.2% (24/576 [95% CI: 2.7% to 6.2%]). The sample size in this study had 80% power to detect at least a 1.73- to 1.91-fold increase in the rate of major malformations. The number of exposed pregnancy outcomes accumulated during the registry was insufficient to support definitive conclusions about overall malformation risk or for making comparisons of the frequencies of specific birth defects. Of the 20 infants with reported birth defects after exposure to sumatriptan in the first trimester, 4 infants had ventricular septal defects, including one infant who was exposed to both sumatriptan and naratriptan, and 3 infants had pyloric stenosis. No other birth defect was reported for more than 2 infants in this group. In a study using data from the Swedish Medical Birth Register, live births to women who reported using triptans or ergots during pregnancy were compared with those of women who did not. Of the 2,257 births with first-trimester exposure to sumatriptan, 107 infants were born with malformations (relative risk 0.99 [95% CI: 0.91 to 1.21]). A study using linked data from the Medical Birth Registry of Norway to the Norwegian Prescription

Database compared pregnancy outcomes in women who redeemed prescriptions for triptans during pregnancy, as well as a migraine disease comparison group who redeemed prescriptions for sumatriptan before pregnancy only, compared with a population control group. Of the 415 women who redeemed prescriptions for sumatriptan during the first trimester, 15 had infants with major congenital malformations (OR 1.16 [95% CI: 0.69 to 1.94]) while for the 364 women who redeemed prescriptions for sumatriptan before, but not during, pregnancy, 20 had infants with major congenital malformations (OR 1.83 [95% CI: 1.17 to 2.88]), each compared with the population comparison group. Additional smaller observational studies evaluating use of sumatriptan during pregnancy have not suggested an increased risk of teratogenicity. Animal Data Oral administration of sumatriptan to pregnant rats during the period of organogenesis resulted in an increased incidence of fetal blood vessel (cervicothoracic and umbilical) abnormalities. The highest no-effect dose for embryofetal developmental toxicity in rats

period of organogenesis resulted in increased incidences of embryo lethality and fetal cervicothoracic vascular and skeletal abnormalities. Intravenous administration of sumatriptan to pregnant rabbits during the period of organogenesis resulted in an increased incidence of embryo lethality. The highest oral and intravenous no-effect doses for developmental toxicity in rabbits were 15 and 0.75 mg/kg/day, respectively. Oral administration of sumatriptan to rats prior to and throughout gestation resulted in embryofetal toxicity (decreased body weight, decreased ossification, increased incidence of skeletal abnormalities). The highest no-effect dose was 50 mg/kg/day. In offspring of pregnant rats treated orally with sumatriptan during organogenesis, there was a decrease in pup survival. The highest no-effect dose for this effect was 60 mg/kg/day. Oral

was 60 mg/kg/day. Oral administration of sumatriptan to pregnant rabbits during the

treatment of pregnant rats with sumatriptan during the latter part of gestation and

this finding was 100 mg/kg/day.

throughout lactation resulted in a decrease in pup survival. The highest no-effect dose for

Patient Information TOSYMRA® (toe-SIM-ruh) (sumatriptan) Nasal Spray

What is the most important information I should know about TOSYMRA?

TOSYMRA can cause serious side effects, including: Heart attack and other heart problems. Heart problems may lead to

Stop taking TOSYMRA and get emergency medical help right away if you have any of the following symptoms of a heart attack:

- discomfort in the center of your chest that lasts for more than a few
- severe tightness, pain, pressure, or heaviness in your chest, throat, neck,
- pain or discomfort in your arms, back, neck, jaw, or stomach
- · shortness of breath with or without chest discomfort
- · breaking out in a cold sweat

minutes, or that goes away and comes back

· feeling lightheaded

- nausea or vomiting
- TOSYMRA is not for people with risk factors for heart disease unless a heart exam is done and shows no problem. You have a higher risk for
- heart disease if you:
- have high blood pressure
- have high cholesterol levels
- smoke · are overweight have diabetes

What is TOSYMRA?

TOSYMRA is a prescription medicine used to treat acute migraine headaches with or without aura in adults. TOSYMRA is not used to treat other types of headaches such as

hemiplegic (that make you unable to move on one side of your body) or basilar (rare form of migraine with aura) migraines. TOSYMRA is not used to prevent or decrease the number of migraines you

It is not known if TOSYMRA is safe and effective in children under 18 years of age.

have. TOSYMRA is not used to treat cluster headaches.

Do not take TOSYMRA if you have:

uncontrolled high blood pressure

severe liver problems

frovatriptan

naratriptan

rizatriptan

have a family history of heart disease

- heart problems or a history of heart problems
- narrowing of blood vessels to your legs, arms, stomach, or kidney (peripheral vascular disease)
- hemiplegic migraines or basilar migraines. If you are not sure if you have these types of migraines, ask your healthcare provider. had a stroke, transient ischemic attacks (TIAs), or problems with your
- blood circulation taken any of the following medicines in the last 24 hours:
- almotriptan
- eletriptan
- ergotamines dihydroergotamine Ask your healthcare provider if you are not sure if your medicine is
- listed above. are taking certain antidepressants, known as monoamine oxidase (MAO)-A inhibitors or it has been 2 weeks or less since you stopped taking a MAO-A inhibitor. Ask your healthcare provider or pharmacist for
- a list of these medicines if you are not sure. an allergy to sumatriptan or any of the ingredients in TOSYMRA. See the end of this Patient Information leaflet for a complete list of ingredients in TOSYMRA.

Before taking TOSYMRA, tell your healthcare provider about all of your medical conditions, including if you: have high blood pressure.

- have high cholesterol. · have diabetes.
- smoke.
- are overweight. • have heart problems or family history of heart problems or stroke.

have had epilepsy or seizures.

- have kidney problems. have liver problems.
- · are not using effective birth control. are pregnant or plan to become pregnant. It is not known if TOSYMRA can harm your unborn baby. are breastfeeding or plan to breastfeed. TOSYMRA passes into your

breast milk. It is not known if this can harm your baby. Talk with your

healthcare provider about the best way to feed your baby if you take

- TOSYMRA. Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.
- TOSYMRA and certain other medicines can affect each other, causing serious side effects.
- Especially tell your healthcare provider if you take anti-depressant medicines called:
- selective serotonin reuptake inhibitors (SSRIs) serotonin norepinephrine reuptake inhibitors (SNRIs) tricyclic antidepressants (TCAs)

monoamine oxidase inhibitors (MAOIs)

How should I take TOSYMRA?

period.

- Ask your healthcare provider or pharmacist for a list of these medicines if you are not sure.
- Know the medicines you take. Keep a list of them to show your healthcare provider or pharmacist when you get a new medicine.
- TOSYMRA nasal spray. Certain people should take their first dose of TOSYMRA in their healthcare provider's office or in another medical setting. Ask your healthcare

See the Instructions for Use for complete information on how to use

 Use TOSYMRA exactly as your healthcare provider tells you to use it. • You should take TOSYMRA as soon as the symptoms of your headache start, but it may be taken at any time during a migraine.

If your headache comes back after the first nasal spray or you only get

If you use too much TOSYMRA, call your healthcare provider or go to the

provider if you should take your first dose in a medical setting.

- some relief from your headache, you can use a second nasal spray 1 hour after the first nasal spray. Do not use more than 30 mg of TOSYMRA Nasal Spray in a 24-hour
- nearest hospital emergency room right away. You should write down when you have headaches and when you take TOSYMRA, so you can talk with your healthcare provider about how TOSYMRA is working for you.

these symptoms, do not drive a car, use machinery, or do anything where you need to be alert.

What are the possible side effects of TOSYMRA? TOSYMRA may cause serious side effects. See "What is the most important information I should know about TOSYMRA?'

syndrome) stomach and intestinal problems (gastrointestinal and colonic ischemic events). Symptoms of gastrointestinal and colonic ischemic events

• changes in color or sensation in your fingers and toes (Raynaud's

- include: o sudden or severe stomach pain stomach pain after meals weight loss
- problems with blood circulation to your legs and feet (peripheral vascular ischemia). Symptoms of peripheral vascular ischemia include: cramping and pain in your legs or hips

nausea or vomiting

bloody diarrhea

fever

constipation or diarrhea

These serious side effects include:

 burning or aching pain in your feet or toes while resting o numbness, tingling, or weakness in your legs cold feeling or color changes in 1 or both legs or feet

feeling of heaviness or tightness in your leg muscles

- medication overuse headaches. Some people who use too much migraine medicine, such as TOSYMRA, for 10 or more days each month may have worse headaches (medication overuse headache). If your
- treatment with TOSYMRA. serotonin syndrome. Serotonin syndrome is a rare but serious problem that can happen in people using TOSYMRA, especially if TOSYMRA is used with anti-depressant medicines called SSRIs or SNRIs. Call your healthcare provider right away if you have any of the following symptoms of serotonin syndrome:

headaches get worse, your healthcare provider may decide to stop your

(hallucinations), agitation, or coma fast heartbeat o changes in blood pressure

mental changes such as seeing things that are not there

- high body temperature tight muscles
- trouble walking
- increased blood pressure including a sudden severe increase
- seizures. Seizures have happened in people taking TOSYMRA who have
- never had seizures before. Talk with your healthcare provider about your
- chance of having seizures while you take TOSYMRA.
- (hypertensive crisis) even if you have no history of high blood pressure. hives (itchy bumps); swelling of your tongue, mouth, or throat.

What should I avoid while taking TOSYMRA? TOSYMRA can cause dizziness, weakness, or drowsiness. If you have tingling dizziness

• burning feeling feeling of heaviness feeling of tightness

 flushing application site abnormal taste

(nasal) reactions

· feeling warm or hot feeling of pressure numbness

throat irritation

Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of TOSYMRA. For more information, ask your healthcare provider or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store TOSYMRA?

Store between 68° to 77°F (20° to 25°C)

• Do not store in the refrigerator or freeze. · Do not test before use.

Keep TOSYMRA and all medicines out of the reach of children.

General information about the safe and effective use of TOSYMRA.

Medicines are sometimes prescribed for purposes other than those listed in Patient Information leaflets. Do not use TOSYMRA for a condition for which it was not prescribed. Do not give TOSYMRA to other people, even if they have the same symptoms you have. It may harm them.

You can ask your healthcare provider or pharmacist for information about TOSYMRA that is written for healthcare professionals.

For more information, go to www.upsher-smith.com or call

What are the ingredients in TOSYMRA?

Active ingredient: sumatriptan

1-888-650-3789.

Inactive ingredients: citric acid monohydrate, n-Dodecyl beta-D-maltoside, potassium phosphate monobasic, sodium chloride, and sodium phosphate dibasic anhydrous in water for injection.

Manufactured for **UPSHER-SMITH LABORATORIES, LLC**

Maple Grove, MN 55369

TOSYMRA is a registered trademark of Upsher-Smith Laboratories, LLC. This product may be covered by one or more U.S. patent(s). See www.uslpatents.com.

This Patient Information has been approved by the U.S. Food and Drug Administration.

141230 Revised: 2/2021

8.2 Lactation

Risk Summary Sumatriptan is excreted in human milk following subcutaneous administration (see Data). There are no data on the effects of sumatriptan on the breastfed infant or the effects of

sumatriptan on milk production. The developmental and health benefits of breastfeeding should be considered along with

the mother's clinical need for TOSYMRA and any potential adverse effects on the breastfed infant from sumatriptan or from the underlying maternal condition.

Infant exposure to sumatriptan can be minimized by avoiding breastfeeding for 12 hours after treatment with TOSYMRA.

Following subcutaneous administration of a 6 mg dose of sumatriptan injection in

5 lactating volunteers, sumatriptan was present in milk.

Safety and effectiveness of TOSYMRA in pediatric patients have not been established. TOSYMRA is not recommended for use in patients younger than 18 years of age.

Two controlled clinical trials evaluated sumatriptan nasal spray (5 mg to 20 mg) in 1,248 pediatric migraineurs 12 to 17 years of age who treated a single attack. The trials did not establish the efficacy of sumatriptan nasal spray compared with placebo in the treatment of migraine in pediatric patients. Adverse reactions observed in these clinical trials were similar in nature to those reported in clinical trials in adults.

Five controlled clinical trials (2 single-attack trials, 3 multiple-attack trials) evaluating oral sumatriptan (25 mg to 100 mg) in pediatric subjects 12 to 17 years of age enrolled a total of 701 pediatric migraineurs. These trials did not establish the efficacy of oral sumatriptan compared with placebo in the treatment of migraine in pediatric patients. Adverse reactions observed in these clinical trials were similar in nature to those reported in clinical trials in adults. The frequency of all adverse reactions in these patients appeared to be both dose- and age-dependent, with younger patients reporting reactions more commonly than older pediatric patients.

Post-marketing experience documents that serious adverse reactions have occurred in the pediatric population after use of subcutaneous, oral, and/or intranasal sumatriptan. These reports include reactions similar in nature to those reported rarely in adults, including stroke, visual loss, and death. A myocardial infarction has been reported in a 14-year-old male following the use of oral sumatriptan; clinical signs occurred within 1 day of drug administration. Clinical data to determine the frequency of serious adverse reactions in pediatric patients who might receive subcutaneous, oral, or intranasal sumatriptan are not presently available.

8.5 Geriatric Use

Clinical trials of sumatriptan did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger patients. Other reported clinical experience has not identified differences in responses between the elderly and younger subjects. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug

A cardiovascular evaluation is recommended for geriatric patients who have other cardiovascular risk factors (e.g., diabetes, hypertension, smoking, obesity, strong family history of CAD) prior to receiving TOSYMRA [see Warnings and Precautions (5.1)].

10 OVERDOSAGE

Coronary vasospasm was observed after intravenous administration of sumatriptan injection [see Contraindications (4)]. Overdoses would be expected from animal data (dogs at 0.1 g/kg, rats at 2 g/kg) to possibly cause convulsions, tremor, inactivity, erythema of the extremities, reduced respiratory rate, cyanosis, ataxia, mydriasis, injection site reactions (desquamation, hair loss, and scab formation), and paralysis.

(12.3)], and therefore monitoring of patients after overdose with TOSYMRA should continue for at least 10 hours or while symptoms or signs persist.

The elimination half-life of sumatriptan is about 2 hours [see Clinical Pharmacology

It is unknown what effect hemodialysis or peritoneal dialysis has on the serum concentrations of sumatriptan.

11 DESCRIPTION

TOSYMRA contains sumatriptan, a selective 5-HT $_{1B/1D}$ receptor agonist. Sumatriptan is chemically designated as 1-[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]-Nmethylmethanesulfonamide, and it has the following structure:

$$H_3C$$
 N
 H
 CH
 CH_3

The empirical formula is $C_{14}H_{21}N_3O_2S$, representing a molecular weight of 295.40. Sumatriptan is a white to pale yellow powder that is very slightly soluble in water. TOSYMRA nasal spray is a clear, pale vellow to vellow colored liquid. Each 100 uL of

TOSYMRA contains 10 mg of sumatriptan in single-dose aqueous buffered solution containing citric acid monohydrate, n-Dodecyl beta-D-maltoside, potassium phosphate monobasic, sodium chloride, and sodium phosphate dibasic anhydrous in water for

The pH range of solution is approximately 5.0 to 6.0 and the osmolality is between 270 to 330 mOsmol.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Sumatriptan binds with high affinity to human cloned 5-HT $_{1B/1D}$ receptors. Sumatriptan presumably exerts its therapeutic effects in the treatment of migraine headache through agonist effects at the 5-HT_{1B/1D} receptors on intracranial blood vessels and sensory nerves of the trigeminal system, which result in cranial vessel constriction and inhibition of pro-inflammatory neuropeptide release.

Peripheral (Small) Arteries

12.2 Pharmacodynamics Blood Pressure Significant elevation in blood pressure, including hypertensive crisis, has been reported in patients with and without a history of hypertension [see Warnings and Precautions (5.8)].

In healthy volunteers (N = 18), a trial evaluating the effects of sumatriptan on peripheral (small vessel) arterial reactivity failed to detect a clinically significant increase in peripheral

Transient increases in blood pressure observed in some subjects in clinical trials carried

out during sumatriptan's development as a treatment for migraine were not accompanied by any clinically significant changes in heart rate. 12.3 Pharmacokinetics Following nasal administration of 10 mg TOSYMRA in 73 healthy subjects, the relative

bioavailability of TOSYMRA was approximately 87% [90% confidence interval (CI)

82 to 94] of that obtained following 4 mg subcutaneous injection of sumatriptan. The relative bioavailability of TOSYMRA was 58% [90% CI 55 to 62] following 6 mg subcutaneous injection of sumatriptan.

<u>Absorption</u> Peak plasma concentration of sumatriptan was observed in a median time of 10 minutes (range 5 to 23 minutes). After single nasal administration of the 10 mg dose, the mean (CV%) C_{max} and AUC were 51.8 ng/mL (58%) and 60.70 ng•hr/mL (42%), respectively.

Sumatriptan protein binding, determined by equilibrium dialysis over the concentration range of 10 to 1,000 ng/mL, is low, approximately 14% to 21%. The effect of sumatriptan on the protein binding of other drugs has not been evaluated.

Following a 6-mg subcutaneous injection into the deltoid area of the arm in 9 males (mean age: 33 years, mean weight: 77 kg) the volume of distribution central compartment of sumatriptan was 50 \pm 8 liters and the distribution half-life was 15 \pm 2 minutes.

The elimination half-life of sumatriptan following administration of TOSYMRA is 2.44 ± 1.00 hours.

Distribution

Metabolism

In vitro studies with human microsomes suggest that sumatriptan is metabolized by MAO, predominantly the A isoenzyme. Most of a radiolabeled dose of sumatriptan excreted in the urine is the major metabolite indole acetic acid (IAA) or the IAA glucuronide, both of which are inactive. **Excretion**

After a single 6 mg subcutaneous dose, 22% ± 4% was excreted in the urine as

unchanged sumatriptan and 38% ± 7% as the IAA metabolite. Following a 6 mg subcutaneous injection into the deltoid area of the arm, the systemic clearance of sumatriptan was 1,194 ± 149 mL/min and the terminal half-life was 115 ±

19 minutes. Specific Populations

The pharmacokinetics of sumatriptan in the elderly (mean age: 72 years, 2 males and 4 females) and in subjects with migraine (mean age: 38 years, 25 males and 155 females)

were similar to that in healthy male subjects (mean age: 30 years). Patients with Hepatic Impairment The effect of hepatic disease on the pharmacokinetics of TOSYMRA has not been

evaluated. The effect of mild to moderate hepatic disease on the pharmacokinetics of

subcutaneously administered sumatriptan has been evaluated. There were no significant differences in the pharmacokinetics of subcutaneously administered sumatriptan in moderately hepatically impaired subjects compared with healthy controls. The pharmacokinetics of subcutaneously administered sumatriptan in patients with severe hepatic impairment has not been studied. The use of TOSYMRA in this population is contraindicated [see Contraindications (4)]. Racial Groups The systemic clearance and C_{max} of subcutaneous sumatriptan were similar in black

(n=34) and Caucasian (n=38) healthy male subjects. TOSYMRA has not been evaluated

for race differences. **Drug Interaction Studies** Monoamine Oxidase-A Inhibitors In a trial of 14 healthy females, pretreatment with an MAO-A inhibitor decreased the

clearance of subcutaneous sumatriptan, resulting in a 2-fold increase in the area under the sumatriptan plasma concentration-time curve (AUC), corresponding to a 40% increase in elimination half-life

13 NONCLINICAL TOXICOLOGY 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility <u>Carcinogenesis</u>

studies in mouse and rat, sumatriptan was administered orally for 78 weeks and 104 weeks, respectively, at doses up to 160 mg/kg/day (the highest dose in rat was reduced from 360 mg/kg/day during Week 21). There was no evidence in either

species of an increase in tumors related to sumatriptan administration. <u>Mutagenesis</u> Sumatriptan was negative in in vitro (bacterial reverse mutation [Ames], gene cell

mutation in Chinese hamster V79/HGPRT, chromosomal aberration in human lymphocytes) and in vivo (rat micronucleus) assavs. **Impairment of Fertility** When sumatriptan (0, 5, 50, 500 mg/kg/day) was administered orally to male and female rats prior to and throughout the mating period, there was a treatment-related decrease in

fertility secondary to a decrease in mating in animals treated with doses greater than 5 mg/kg/day. It is not clear whether this finding was due to an effect on males or females

When sumatriptan was administered by subcutaneous injection to male and female rats prior to and throughout the mating period, there was no evidence of impaired fertility at doses up to 60 mg/kg/day. 13.2 Animal Toxicology and/or Pharmacology

Corneal Opacities

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Dogs receiving oral sumatriptan developed corneal opacities and defects in the corneal epithelium. Corneal opacities were seen at the lowest dose tested, 2 mg/kg/day, and were present after 1 month of treatment. Defects in the corneal epithelium were noted in a 60-week study. Earlier examinations for these toxicities were not conducted and no-effect doses were not established.

14 CLINICAL STUDIES The efficacy of TOSYMRA is based on the relative bioavailability of TOSYMRA nasal spray compared to sumatriptan subcutaneous injection (4 mg) in healthy adults [see Clinical Pharmacology (12.3)].

In controlled clinical trials enrolling more than 1,000 patients during migraine attacks who were experiencing moderate or severe pain and 1 or more of the symptoms enumerated

in Table 3, onset of relief began as early as 10 minutes following a 6 mg sumatriptan injection. Lower doses of sumatriptan injection may also prove effective, although the proportion of patients obtaining adequate relief was decreased and the latency to that relief is greater with lower doses. In Study 1, 6 different doses of sumatriptan injection (n = 30 each group) were compared

with placebo (n = 62) in a single-attack, parallel-group design; the dose-response relationship was found to be as shown in Table 2.

Table 2: Proportion of Patients with Migraine Relief and Incidence of Adverse Reactions by Time and by Sumatriptan Dose in Study 1

Dose of	Percent Patients with Reliefa				Adverse Reactions	
sumatriptan Injection	at 10 Minutes	at 30 Minutes	at 1 Hour	at 2 Hours	Incidence (%)	
Placebo	5	15	24	21	55	
1 mg	10	40	43	40	63	
2 mg	7	23	57	43	63	
3 mg	17	47	57	60	77	
4 mgb	13	37	50	57	80	
6 mg	10	63	73	70	83	
8 ma	23	57	80	83	93	

a Relief is defined as the reduction of moderate or severe pain to no or mild pain after

dosing without use of rescue medication.

b Efficacy of Tosymra nasal spray was demonstrated based on bioavailability to 4 mg sumatriptan SC injection.

In 2 randomized, placebo-controlled clinical trials of sumatriptan injection 6 mg in 1,104 patients with moderate or severe migraine pain (Studies 2 and 3), the onset of relief was less than 10 minutes. Headache relief, as defined by a reduction in pain from severe or moderately severe to mild or no headache, was achieved in 70% of the patients within 1 hour of a single 6 mg subcutaneous dose of sumatriptan injection. Approximately 82% and 65% of patients treated with sumatriptan 6 mg had headache relief and were pain free within 2 hours, respectively.

Table 3 shows the 1- and 2-hour efficacy results for sumatriptan injection 6 mg in

Table 3: Proportion of Patients with Pain Relief and Relief of Migraine Symptoms after 1 and 2 Hours of Treatment in Studies 2 and 3 Study 2

Sumatriptan

Sumatriptan

1-Hour Data	Placebo (n = 190)	Injection 6 mg (n = 384)	Placebo (n = 180)	Injection 6 mg (n = 350)
Patients with pain relief (Grade 0/1)	18%	70% ^a	26%	70% ^a
Patients with no pain	5%	48%a	13%	49%a
Patients without nausea	48%	73%a	50%	73%ª
Patients without photophobia	23%	56%ª	25%	58%ª
Patients with little or no clinical disability ^b	34%	76%ª	34%	76%ª
	Study 2		Study 3	
2-Hour Data	Placeboc	Sumatriptan Injection 6 mg ^d	Placebo ^c	Sumatriptan Injection 6 mg ^d

Patients with pain relief 39% 82%a 31% 81%a (Grade 0/1) Patients with no pain 11% 63%a 19% 65%a Patients without nausea 56% 82%a 63% 81%a Patients without 31% 72%a 35% 71%a photophobia Patients with little or no clinical disabilityb 42% 85%a 49% 84%a

a P<0.05 versus placebo.

^b A successful outcome in terms of clinical disability was defined prospectively as ability to work mildly impaired or ability to work and function normally.

c Includes patients that may have received an additional placebo injection 1 hour after the initial injection.

d Includes patients that may have received an additional 6 mg of sumatriptan injection 1 hour after the initial injection.

The efficacy of sumatriptan injection was unaffected by whether or not the migraine was associated with aura, duration of attack, gender or age of the patient, or concomitant use

Sumatriptan injection also relieved photophobia, phonophobia (sound sensitivity), nausea,

of common migraine prophylactic drugs (e.g., beta-blockers). 16 HOW SUPPLIED/STORAGE AND HANDLING

16.1 How Supplied • TOSYMRA® 10 mg (NDC 0245-0812-89) contains sumatriptan and is supplied as a ready-to-use, single-dose, disposable unit.

• Each carton contains 6 units (NDC 0245-0812-61) and a Patient Information and Instructions for Use leaflet.

and vomiting associated with migraine attacks.

16.2 Storage and Handling Store at 20° to 25°C (68° to 77°F); excursions permitted between 15° to 30°C

(59° to 86°F).

Do not store in the refrigerator or freezer. Do not test before use.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information and Instructions for Use).

Risk of Myocardial Ischemia and/or Infarction, Prinzmetal's Angina, Other Vasospasm-Related Events, Arrhythmias, and Cerebrovascular Events Inform patients that TOSYMRA may cause serious cardiovascular side effects such as

myocardial infarction or stroke. Although serious cardiovascular events can occur without warning symptoms, patients should be alert for the signs and symptoms of chest pain, shortness of breath, irregular heartbeat, significant rise in blood pressure, weakness, and slurring of speech and should ask for medical advice when observing any indicative sign or symptoms are observed. Apprise patients of the importance of this follow-up [see Warnings and Precautions (5.1, 5.2, 5.4, 5.5, 5.8)].

Hypersensitivity Reactions

Inform patients that anaphylactic reactions have occurred in patients receiving sumatriptan. Such reactions can be life threatening or fatal. In general, anaphylactic reactions to drugs are more likely to occur in individuals with a history of sensitivity to multiple allergens [see Contraindications (4) and Warnings and Precautions (5.9)].

Concomitant Use with Other Triptans or Ergot Medications Inform patients that use of TOSYMRA within 24 hours of another triptan or an ergot-type

Contraindications (4), Drug Interactions (7.1, 7.3)]. Serotonin Syndrome Caution patients about the risk of serotonin syndrome with the use of TOSYMRA or other

medication (including dihydroergotamine or methylsergide) is contraindicated [see

triptans, particularly during combined use with SSRIs, SNRIs, TCAs, and MAO inhibitors [see Warnings and Precautions (5.7), Drug Interactions (7.4)].

Medication Overuse Headache Inform patients that use of acute migraine drugs for 10 or more days per month may lead to an exacerbation of headache and encourage patients to record headache frequency and drug use (e.g., by keeping a headache diary) [see Warnings and Precautions (5.6)].

Advise patients to notify their healthcare provider if they become pregnant during treatment or plan to become pregnant [see Use in Specific Populations (8.1)].

Advise patients to notify their healthcare provider if they are breastfeeding or plan to breastfeed [see Use in Specific Populations (8.2)]. Ability to Perform Complex Tasks

Treatment with TOSYMRA may cause somnolence and dizziness; instruct patients to evaluate their ability to perform complex tasks during migraine attacks and after

administration of TOSYMRA. Local Irritation Inform patients that they may experience local irritation of their nose, mouth, and throat;

and changes in taste [see Warnings and Precautions (5.11)].

Manufactured for

How to Use TOSYMRA Provide patients instruction on the proper use of TOSYMRA. Caution patients to avoid

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spraying the contents of the device in their eyes.

This product may be covered by one or more U.S. patent(s). See www.uslpatents.com. 141230

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