



---

## Cost-effectiveness Evaluation Of Therapy With Naratriptan And Rizatriptan For Migraine In Spain

**Corresponding Author:**

Dr. Manuel Hens, PhD,  
Neurologist, Diploma de Especializacion en Farmacoeconomia y Analisis del Uso de Medicamentos, Conde de Serrallo,1, P-5, 1-5. Madrid, 28029 - Spain

**Submitting Author:**

Dr. Manuel, PhD Hens,  
Neurologist, Diploma de Especializacion en Farmacoeconomia y Analisis del Uso de Medicamentos - Spain

**Article ID:** WMC00958

**Article Type:** Original Articles

**Submitted on:** 13-Oct-2010, 05:24:02 AM GMT **Published on:** 13-Oct-2010, 10:01:38 AM GMT

**Article URL:** [http://www.webmedcentral.com/article\\_view/958](http://www.webmedcentral.com/article_view/958)

**Subject Categories:** ECONOMICS OF MEDICINE

**Keywords:** Migraine, Therapy, Treatment, Triptans, Naratriptan, Rizatriptan, Cost-effectiveness, Economics, Spain

**How to cite the article:** Hens, PhD M , Latorre-Martinez, PharmD M , Vinuela-Alvarez, PharmD D . Cost-effectiveness Evaluation Of Therapy With Naratriptan And Rizatriptan For Migraine In Spain . WebmedCentral ECONOMICS OF MEDICINE 2010;1(10):WMC00958

**Source(s) of Funding:**

None.

**Competing Interests:**

None.

**Additional Files:**

[Illustration Additional File](#)

# Cost-effectiveness Evaluation Of Therapy With Naratriptan And Rizatriptan For Migraine In Spain

**Author(s):** Hens, PhD M , Latorre-Martinez, PharmD M , Vinuela-Alvarez, PharmD D

## Abstract

The purpose of this study is to investigate the cost-effectiveness of naratriptan and rizatriptan therapy for migraine attacks. **Methods:** cost-effectiveness analysis from the healthcare financier perspective in Spain, using a model based on a decision tree, which incorporates the direct healthcare costs and the probabilities associated with each of the possible outcomes. The average cost-effectiveness ratio and incremental cost-effectiveness ratio were obtained. **Results:** the average cost-effectiveness ratio of rizatriptan was 91.99 Euro per unit of effectiveness, in contrast to 139.27 for naratriptan. When comparing the cheapest therapy (naratriptan) with the most effective one (rizatriptan), the incremental cost-effectiveness ratio was 7.93 Euro per unit of effectiveness gained. **Conclusion:** Rizatriptan proved to be more efficient than naratriptan for the treatment of acute migraine in terms of cost-effectiveness, from the healthcare-provider perspective in Spain.

## Introduction

Migraine is a high prevalent condition associated with a social and economic substantial burden (1-3). Triptans are an usual therapy for the treatment of moderate to severe migraine attacks, or for mild to moderate attacks that are unresponsive to analgesics or anti-inflammatory drugs (3). Nevertheless their high costs when compared to other available pharmacological treatments, make it necessary to perform careful cost-effectiveness analysis in order to justify their use(4). Diverse pharmaco-economic studies on triptans therapy for migraine have been performed and can be found in the literature (5). However, such studies are scarce in Spain. This work present a cost-effectiveness evaluation of naratriptan and rizatriptan therapy for migraine in Spain.

## Methods

The aim of this study was to investigate the

cost-effectiveness differences between naratriptan and rizatriptan therapy for migraine attacks, from the healthcare-financer perspective in Spain. The considered therapeutic doses were: naratriptan 2.5 mg, and rizatriptan 10 mg, as a single dose, orally administered. The analysis was performed for oral tablets only, but excluding oral lyophilisate rizatriptan. The model used for the analysis was based on a decision tree, incorporating the direct healthcare costs and the probabilities associated with each of the possible outcomes. An eligible case, considered at the initial decision node of the model, was assumed to be a patient, previously diagnosed with migraine according to the International Headache Classification (ICHD-2) (6), going to an outpatient neurologist service. The main branches of the tree represent the management options. The probabilities associated with the possible outcomes were obtained from the literature (average effectiveness) (7). The assumption was made that two hours after a triptan single oral dose a patient would be in one of the two possible outcomes, i.e., effectiveness (relief of pain), or ineffectiveness (no relief of pain). These outcomes are represented in the form of end nodes of the decision tree (Illustration 1).

The analysis of the decision tree model resulted in final probabilities of a theoretical patient ending up in one of the two outcome groups (effectiveness or ineffectiveness). The so-called outcome probabilities are supposed to have a value between 0 (0%) and 1 (100%). Based on these probabilities, the expected cost of each of the strategies was determined. The model included the costs of a visit to the neurologist, obtained from a previous study (8), and the cost of a single dose of each of the drugs under assessment. Published market drug prices of conventional pharmacies of 2010 were incorporated, and they were obtained from the current national drug directory (9). Online pharmacies' prices were not included in the study. The costs of triptans' single doses were calculated taking into account the smallest size of package. Illustration 2 summarizes the costs included in the model. All costs were expressed in Euros. The cost of the visit to the neurologist was updated to year 2010 according to the consumer price index in Spain (10). Employing standard methods of cost-effectiveness analysis, the costs of each branch of the model were obtained. Average

cost-effectiveness ratio (ACER) was calculated for each of the drugs, being the total cost in each strategy divided by its effectiveness' probability. The incremental cost-effectiveness ratio (ICER) was also obtained by dividing the difference in expected costs of both alternatives by the difference in efficacy of these two alternatives. Tree branches probabilities, costs calculations and cost-effectiveness analysis, were performed using Microsoft Excel®.

## Results

The results of ACER obtained for the drugs are listed in Illustration 3. Rizatriptan turned out to be more efficient than naratriptan in terms of cost-effectiveness, being ACER of rizatriptan 91.99 Euro per unit of effectiveness, in contrast to 139.27 for naratriptan. When comparing the cheapest therapy (naratriptan) with the most effective one (rizatriptan), ICER was 7.93 Euro per unit of effectiveness gained (Illustration 3).

## Discussion

Pharmacoeconomic studies play an important role in the decision-making process of allocation of resources in health care systems. They represent a useful tool when it comes to financing a determined drug therapy, especially in the case of high-prevalence diseases and/or when the pharmacological treatment implies a high cost. In the case of migraine disease both conditions are met, and cost-effectiveness studies on triptans therapies are used to ease the choice by relating the effects and potential benefits of a drug to the amount of resources invested. The objective of this study was the comparison of two different pharmacological treatments whereby it was concluded that rizatriptan proved to be more efficient than naratriptan in terms of cost-effectiveness.

This study was performed under the assumption that in a previous step, the patient had already been diagnosed with migraine. Therefore the costs of the diagnostic process have not been taken into account and have not been included in the analysis. The perspective of the evaluation focused on the side of the healthcare financier. The analysis was restricted to the effectiveness of the drugs as such and thus those costs associated with adverse drugs effects were not reflected in the model, as it was assumed that none of them were severe in nature and they would not persist long-term. The study was conducted in the framework

of an outpatient visit to the neurologist and so costs associated with emergency care were not included either. Beyond the possible limitations of the analytical model used and having due consideration to methodological differences, the final conclusions of the analysis presented in this study showed to be similar to the outcomes obtained in previous works (5,7).

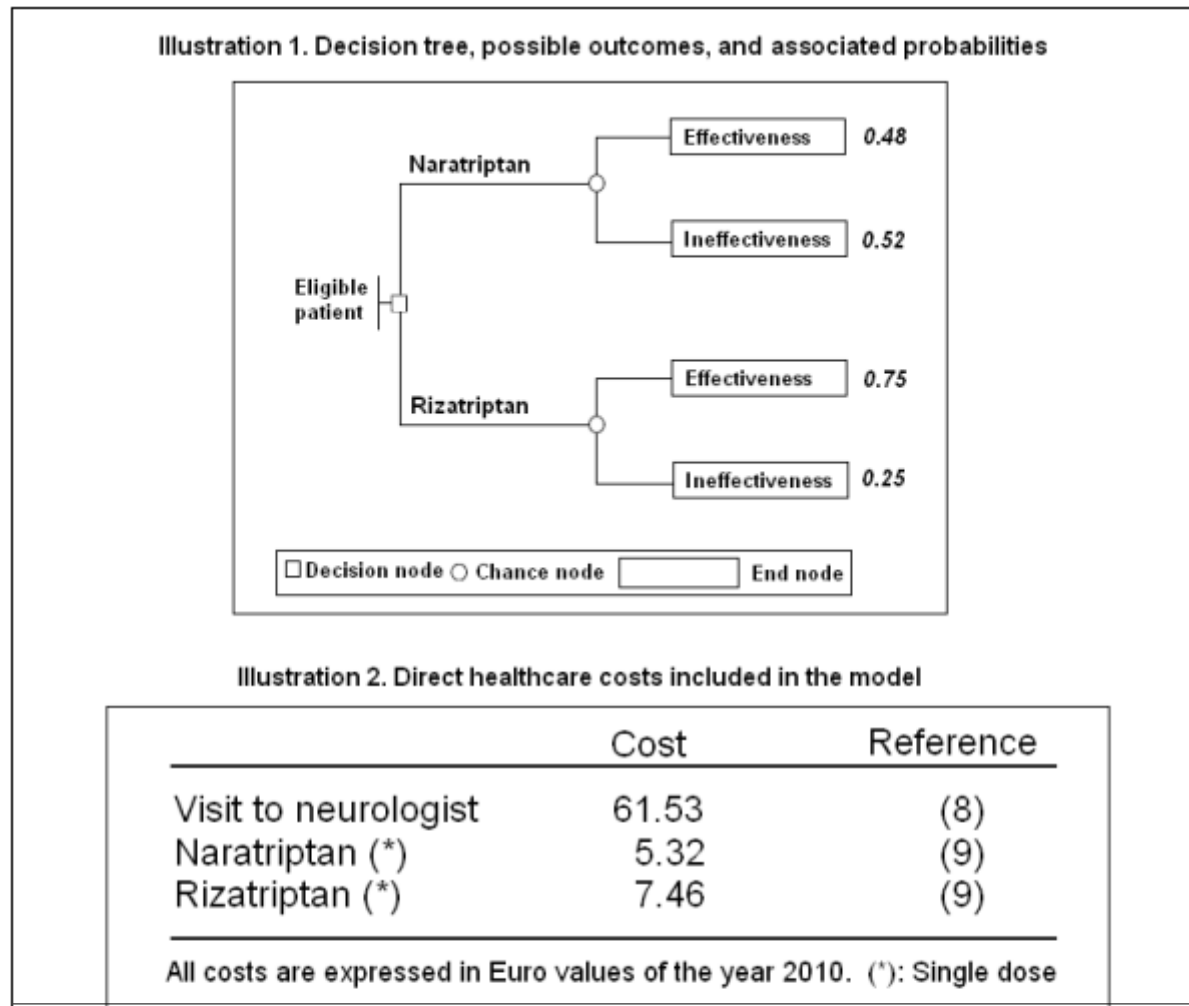
## References

1. Stewart WF, Lipton RB, Celentano DD, Reed ML. Prevalence of Migraine Headache in the United States. Relation to Age, Income, Race, and Other Sociodemographic Factors. *JAMA* 1992;267:64-9.
2. Ferrari MD. The Economic Burden of Migraine to Society. *Pharmacoeconomics* 1998;13:667-76.
3. Aukerman G, Knutson D, Miser WF. Management of the Acute Migraine Headache. *Am Fam Physician* 2002;66:2123-30.
4. Caro JJ, Getsios D. Pharmacoeconomic evidence and considerations for triptan treatment of migraine. *Expert Opin Pharmacother* 2002;3:237-48.
5. Membe S, McGahan L, Cimon K, Gawel M, Giammarco R, Mierzwinski-Urban M. Triptans for Acute migraine: comparative clinical effectiveness and cost-effectiveness [Technology report no 76]. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2007.
6. International Headache Classification (ICHD-2). International Headache Society. Available from: <http://ihs-classification.org/en/>
7. Gracia-Naya M. Cost-effectiveness of treatment with triptanes in Spain. *Rev Neurol* 2001;33:921-4.
8. Diaz S, Argumosa A, Horga de la Parte JF, Vera-Llonch M, Dukes E, Rejas-Gutiérrez J. Analysis of the cost-effectiveness of treatment for refractory partial epilepsy: a simulation model for pregabalin and levetiracetam. *Rev Neurol* 2007;45:460-7.
9. *Vademecum Internacional*, 50th edition. Madrid: UBM Medicom Editorial S.A., UBM Medica Ltd., 2010. Available from: <http://www.vademecum.es/>
10. Instituto Nacional de Estadística (National Statistics Institute). Available from: <http://www.ine.es/>

# Illustrations

## Illustration 1

Decision tree, possible outcomes and associated probabilities



## Disclaimer

This article has been downloaded from WebmedCentral. With our unique author driven post publication peer review, contents posted on this web portal do not undergo any prepublication peer or editorial review. It is completely the responsibility of the authors to ensure not only scientific and ethical standards of the manuscript but also its grammatical accuracy. Authors must ensure that they obtain all the necessary permissions before submitting any information that requires obtaining a consent or approval from a third party. Authors should also ensure not to submit any information which they do not have the copyright of or of which they have transferred the copyrights to a third party.

Contents on WebmedCentral are purely for biomedical researchers and scientists. They are not meant to cater to the needs of an individual patient. The web portal or any content(s) therein is neither designed to support, nor replace, the relationship that exists between a patient/site visitor and his/her physician. Your use of the WebmedCentral site and its contents is entirely at your own risk. We do not take any responsibility for any harm that you may suffer or inflict on a third person by following the contents of this website.