

Report on New Patented Drugs - Vasovist

Under its transparency initiative, the PMPRB publishes the results of the reviews of new patented drugs by Board Staff for purposes of applying the *Board's Excessive Price Guidelines* (Guidelines) for all new active substances introduced in Canada after January 1, 2002.

Brand Name: Vasovist
Generic Name: (*gadofosveset trisodium*)
DIN: 02286319 (244 mg/mL)
Patentee: Bayer Inc.

Indication - as per product monograph:

For contrast-enhanced magnetic resonance angiography for visualization of abdominal or limb vessels in patients with suspected or known vascular disease.

Date of Issuance of First Patent(s)

Pertaining to the Medicine: January 23, 1990

Notice of Compliance: October 31, 2006

Date of First Sale: September 11, 2007

ATC Class: V08CA
Various; Contrast Media; Magnetic Resonance Imaging Contrast Media; Paramagnetic contrast media

APPLICATION OF THE GUIDELINES

Summary

The introductory price of Vasovist was found to be within the Guidelines because the cost of therapy did not exceed the cost of therapy of existing drugs in the therapeutic class comparison and did not exceed the range of the prices of the same medicine in the comparator countries listed in the *Patented Medicines Regulations* (Regulations) where Vasovist was sold.

Scientific Review

Vasovist is a new active substance and the PMPRB's Human Drug Advisory Panel (HDAP) recommended that Vasovist be classified as a category 3 new medicine (provides moderate, little or no therapeutic advantage over comparable medicines).

The Therapeutic Class Comparison (TCC) test of the Guidelines provides that the price of a category 3 new drug product cannot exceed the prices of other drugs that treat the same disease or condition. Comparators are generally selected from among existing drug products in the same 4th level of the World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) classification system that are clinically equivalent in addressing the approved indication. See the PMPRB's *Compendium of Guidelines, Policies and Procedures* for a more complete description of the Guidelines and the policies on TCCs.

The HDAP recommended Gadovist (*gadobutrol*), Multihance (*gadobenate dimeglumine*) and Omniscan (*gadodiamide*) as the most appropriate comparators to Vasovist. These contrast media agents share the same fourth level ATC class and are indicated and used for contrast enhanced magnetic resonance angiography of vessel pathology.

The Guidelines provide that the dosage recommended for comparison purposes will normally not be higher than the maximum of the usual recommended dosage. The recommended comparative dosage regimens for Vasovist and the comparators were based on the respective product monographs and supported by clinical literature.

Price Review

Under the Guidelines, the introductory price of a new category 3 drug product will be presumed to be excessive if it exceeds the price of all of the comparable drug products based on the TCC test, or if it exceeds the range of the prices of the same medicine in the seven countries listed in the Regulations.

The introductory price of Vasovist was within the Guidelines as the cost of treatment did not exceed the cost of treatment of the comparable medicines.

Introductory Period (September to December 2006)

Brand Name (generic)	Strength	Dosage Regimen (per Treatment)	Unit Price	Cost per Treatment
Vasovist (gadofosveset trisodium)	244 mg/mL	8.4 mL	\$17.0000 ¹	\$142.8000
Gadovist (<i>gadobutrol</i>)	604.72 mg/mL	20 mL	\$11.7000 ¹	\$234.0000
Multihance (<i>gadobenate dimeglumine</i>)	529 mg/mL	30 mL	----- ²	-----
Omniscan (<i>gadodiamide</i>)	287 mg/mL	42 mL	----- ²	-----

Sources:

- (1) Publicly available price as per the Regulations
- (2) See textbox

In 2007, Vasovist was being sold in five countries listed in the Regulations, namely Germany, Italy, Sweden, Switzerland, and the United Kingdom. In compliance with the Guidelines, the price of Vasovist in Canada did not exceed the range of prices in those countries. It was the third highest price, above the median of the international prices.

The publication of Summary Reports is part of the PMPRB's commitment to make its price review process more transparent.

Where comparators and dosage regimens are referred to in the Summary Reports, they have been selected by the HDAP for the purpose of carrying out the PMPRB's regulatory mandate, which is to review the prices of patented medicines sold in Canada to ensure that such prices are not excessive.

The PMPRB reserves the right to exclude from the therapeutic class comparison list any drug product if it has reason to believe it is being sold at an excessive price.

In its Summary Reports, the PMPRB will also refer to the publicly available prices of comparators provided such prices are not more than 10% above a non-excessive price in which case no price will be made available. As a result, the publication of these prices is for information purposes only and should not be relied upon as being considered within the Guidelines.

The information contained in the PMPRB's Summary Reports should not be relied upon for any purpose other than stated and is not to be interpreted as an endorsement, recommendation or approval of any drug nor is it intended to be relied upon as a substitute for seeking appropriate advice from a qualified health care practitioner.

References - Vasovist

1. American College of Radiology ACR appropriateness criteria. Claudicating: Screening and diagnostic techniques for peripheral arterial disease; 1995. Available: http://www.acr.org/Secondary/MainMenuCategories/quality_safety/app_criteria/pdf/Vascular/ClaudicationDoc9.aspx
2. Bluemke DA, Stillman AE, Bis KG, et al. Carotid MR angiography: phase II study of safety and efficacy for MS-325. Radiology. 2001 Apr;219(1):114-22. Available: <http://radiology.rsna.org/cgi/content/full/219/1/114>
3. Canadian Cardiovascular Society consensus conference: peripheral arterial disease; 2005. Available: http://www.ccs.ca/download/consensus_conference/consensus_conference_archives/CFinalPre_CJC_Pub.pdf

4. Ersoy H, Zhang H, Prince MR. Peripheral MR angiography. *J Cardiovasc Magn Reson*. 2006;8(3):517-28.
5. European Medicines Agency. Scientific discussion (gadofosveset trisodium). Available: <http://www.emea.europa.ed/humandocs/PDFs/EPAR/vasovist/060105en6.pdf>
6. Giovagnoni A, Gatalano C. Application of blood-pool agents in visualization of peripheral vessels. *Eur Radiol*. 2007 Mar;17 Suppl 2:B18-23.
7. Goyen M, Edelman M, Perrault P, et al. MR angiography of aortoiliac occlusive disease: a phase III study of the safety and effectiveness of the blood-pool contrast agent MS-325. *Radiology*. 2005 Sep;236(3):825-33. Available: <http://radiology.rsnajnl.org/cgi/content/full/236/3/825>
8. Goyen M, Grand DJ. Gadofosveset: viewpoints. *Drugs*. 2006;66(6):858-9.
9. Goyen M, Shamsi K, Schoenberg SO. Vasovist-enhanced MR angiography. *Eur Radiol*. 2006 Feb;16 Suppl 2:B9-14.
10. Hartmann M, Wiethoff AJ, Hentrich HR, et al. Initial imaging recommendations for Vasovist angiography. *Eur Radiol*. 2006 Feb;16 Suppl 2:B15-23.
11. Henness S, Keating GM. Gadofosveset. *Drugs*. 2006;66(6):851-7.
12. Hirsch AT, Haskal ZJ, Hertzner NR, et al. ACC/AHA Guidelines for Management of Patients with Peripheral Arterial Disease (lower extremity, renal, mesenteric, and abdominal aortic): a collaborative report from the American Associations for Vascular Surgery/Society for Vascular Surgery, Society for Cardiovascular Angiography and Interventions, Society for Vascular Medicine and Biology, Society of Interventional Radiology, and the ACC/AHA Task Force on Practice Guidelines (writing committee to develop guidelines for the management of patients with peripheral arterial disease) – summary of recommendations. *J Vasc Interv Radiol*. 2006 Sep;17(9):1383-97. Available: <http://www.jvir.org/cgi/content/full/17/9/1383>
13. Korst MB, Joosten FB, Postma CT, et al. Accuracy of normal-dose contrast-enhancing MR angiography in assessing renal artery stenosis and accessory renal arteries. *AJR Am J Roentgenol*. 2000 Mar;174(3):629-34. Available: <http://www.ajronline.org/cgi/content/full/174/3/629>
14. Meaney JF, Goyen M. Recent advances in contrast-enhanced magnetic resonance angiography. *Eur Radiol*. 2007 Mar;17 Suppl2:B2-6.
15. Perreault P, Edelman MA, Baum RA, et al. MR angiography with gadofosveset trisodium for peripheral vascular disease: phase II trial. *Radiology*. 2003 Dec;229(3):811-20. Available: <http://radiology.rsnajnl.org/cgi/content/full/229/3/811>
16. Product Monograph of Gadovist (gadobutrol). Electronic CPS 2007.
17. Product Monograph of Magnevist (dangopentetate). Electronic CPS 2007.
18. Product Monograph of Omniscan (gadodiamide). Electronic CPS 2007.

19. Rapp JF, Wolff SD, Quinn SF, et al. Aortoiliac occlusive disease in patients with known or suspected peripheral vascular disease: safety and efficacy of gadofosveset-enhanced MR angiography – multi center comparative phase III study. *Radiology*. 2005 Jul;236(1):71-8. Available: <http://radiology.rsnajnl.org/cgi/content/full/236/1/71>
20. Schaefer PJ, Doudghene FP, Brambs HJ, et al. Abdominal and iliac arterial stenoses: comparative double-blinded randomized study of diagnostic accuracy of 3D MR angiography with gadodiamide or gadopentetate dimeglumine. *Radiology*. 2006 Mar;238(3):827-40. Available: <http://radiology.rsnajnl.org/cgi/content/full/238/3/827>
21. Scottish Intercollegiate Guidelines Network. Diagnosis and management of peripheral arterial disease. October 2006. Available: <http://www.sign.ac.uk/pdf/sign89.pdf>
22. Shah DJ, Brown B, Kim JR, et al. Magnetic resonance evaluation of peripheral arterial disease. *Cardiol Clin*. 2007 Feb;25(1):185-212.
23. Sharafuddin MJ, Stolpen AH, Dang YM, et al. Comparison of MS-325 and gadodiamide-enhanced MR venography of ilocaval veins. *J Vasc Interv Radio*. 2002 Oct;13(10):1021-7. Available: <http://www.jvir.org/cgi/content/full/13/10/1021>
24. Sharafuddin MJ, Wroblecka JT, Sun S, et al. Percutaneous vascular intervention based on gadolinium-enhanced MR angiography. *J Vasc Interv Radiol*. 2000 Jun;11(6):739-46. Available: <http://www.jvir.org/cgi/content/full/11/6/739>
25. The College of Physicians and Surgeons of Ontario (CPSO). Clinical practice parameters and facility standards: magnetic resonance imaging; January 2003. Available: <http://www.cpso.on.ca/publications/MRIbook.pdf>
26. Wilman AH, Riederer SJ, King BF, et al. Fluoroscopically triggered contrast-enhanced three-dimensional MR angiography with elliptical centric view order: application to the renal arteries. *Radiology*. 1997 Oct;205(1):137-46. Available: <http://radiology.rsnajnl.org/cgi/reprint/205/1/137>