Effectiveness of rosuvastatin in reducing LDL-C and target LDL-C goal attainment in real-world clinical practice

Gandhi SK, Jarbrink K, Fox KM, Brandrup-Wognsen G

CRD summary
This review concluded that compared with other statins there was strong and consistent evidence to demonstrate the effectiveness of rosuvastatin in reducing low-density lipoprotein cholesterol (LDL-C) and LDL-C goals in usual care settings. These conclusions should be interpreted with caution given a possibility of publication bias, insufficient data and limited methodological rigour of the included studies.

Authors' objectives
To assess the effectiveness of rosuvastatin for the treatment of hypercholesterolaemia in the usual-care setting.

Searching
MEDLINE and EMBASE were searched from January 2003 to September 2008 for published articles in any language. Search terms were reported. Abstracts were excluded.

Study selection
Observational and non-interventional studies that assessed rosuvastatin use in routine clinical practice in patients with hypercholesterolaemia were eligible for inclusion. Studies of randomised controlled trials were excluded, as were studies of all statins combined. The review outcomes were reduction in low-density lipoprotein cholesterol (LDL-C) and proportion of patients who attained LDL-C goal (as recommended by National Cholesterol Education Program Adult Treatment Panel III or European Society of Cardiology guidelines).

The mean starting dose of rosuvastatin in the included studies ranged from 10mg to 12mg. Other statins assessed included atorvastatin, simvastatin, pravastatin, fluvastatin and lovastatin administered at commonly prescribed doses. Where reported, treatment duration ranged from one to 18 months. Most of the included studies assessed rosuvastatin use in large numbers of adult patients (at least 18 years old). The included studies were conducted in USA, UK, The Netherlands and Canada.

The authors did not state how many reviewers assessed studies for inclusion.

Assessment of study quality
The authors stated that they did not perform validity assessment.

Data extraction
Data were extracted on the per cent reduction in LDL-C and proportion of patients who attained LDL-C goal. Data were extracted separately for rosuvastatin and other statins. For rosuvastatin, relevant data on subgroup populations (such as elderly, diabetes and HIV) were extracted.

Data extraction was performed by one reviewer and checked by another reviewer.

Methods of synthesis
The studies were combined in a narrative synthesis supported by data tables.

Results of the review
Fifteen studies were included in the review: seven were of patients with newly initiated statin therapy (n=38,678 patients including 3,957 for rosuvastatin and 34,721 for other statins). All the included studies were retrospective cohort studies.
Rosuvastatin was associated with a greater reduction in LDL-C in patients who were newly initiated on statin therapy compared with other statins (29% to 52% versus 16% to 43%; seven studies). LDL-C goal attainment was consistently higher in patients who received rosuvastatin compared with those who received other statins (64% to 81% versus 34% to 73%; five studies).

Among patients with diabetes (two studies, n=4,993), HIV (one study, n=130) or who were elderly (two studies, n=12,360), rosuvastatin was associated with greater LDL-C reduction and LDL-C goal attainment compared with other statins.

Three studies examined patients who were switched to rosuvastatin from another statin. Further results were reported.

**Authors' conclusions**
There was strong and consistent evidence demonstrating the effectiveness of rosuvastatin in reducing LDL-C and attaining LDL-C goals in the usual care setting compared with other statins.

**CRD commentary**
This review’s inclusion criteria were clear. Relevant databases were searched. Efforts were made to find published studies but not unpublished studies, which increased potential for publication bias. No language restrictions were applied to the search, which minimised the risk of language bias. Steps were made to minimise reviewer errors and biases in the process of data extraction; it was unclear whether study selection was performed in duplicate. No formal quality assessment was performed. All the included studies were observational studies; this type of study design was of limited methodological rigour. Given the diversity of included studies, a narrative synthesis was appropriately employed. The review was funded by the manufacturer.

These conclusions should be interpreted with caution given the possibility of publication bias, insufficient data and limited methodological rigour of the included studies.

**Implications of the review for practice and research**
**Practice:** The authors stated that rosuvastatin should be considered an effective treatment for optimising management of at-risk patients with hypercholesterolaemia in routine clinical practice.

**Research:** The authors did not state any implications for research.

**Funding**
AstraZeneca Pharmaceuticals LP.

**Bibliographic details**

**PubMedID**
19916726

**DOI**
10.1185/03007990903333389

**Original Paper URL**
http://informahealthcare.com/doi/abs/10.1185/03007990903333389

**Indexing Status**
Subject indexing assigned by NLM
MeSH
Cholesterol, LDL /blood; Down-Regulation /drug effects; Fluorobenzenes /therapeutic use; Humans; Hydroxymethylglutaryl-CoA Reductase Inhibitors /therapeutic use; Hypercholesterolemia /blood /drug therapy; Population; Professional Practice; Pyrimidines /therapeutic use; Rosuvastatin Calcium; Sulfonamides /therapeutic use; Treatment Outcome

AccessionNumber
12010000838

Date bibliographic record published
23/06/2010

Date abstract record published
18/05/2011

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.