

## NON-STANDARD DRUGS REQUESTS REVIEWS: ROLE OF PHARMACIST AT RESEARCH AND DRUG INFORMATION UNIT (RDIU), HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

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### ABSTRACT

A retrospective study of the records of non-standard drugs requests reviews received by the Research and Drug Information Unit (RDIU), Hospital Universiti Sains Malaysia (HUSM) was undertaken to describe the pharmacist roles in making an assessment on the application of rosuvastatin based on the patient's condition and clinical evidence available. All reviews of rosuvastatin requests from March till December 2010 were studied. The total number of rosuvastatin requests reviewed was 72 with 36 requests being justified, 32 requests not justified and 4 requests could not be evaluated. Based on 32 requests that are not being justified, the acquisition cost of rosuvastatin is RM 45,549.90 if all the requests are being justified by pharmacist and RM 7057.68 if rosuvastatin is not being approved and substituted with other statins. The total cost difference between rosuvastatin and other statins is RM 38,492.22. Based on our result, up to 84.5% of the cost of statin treatment can be saved if the comments or intervention made by pharmacist after critically reviews the appropriateness of the rosuvastatin request is accepted. Pharmacists play an important role by critically review the need of rosuvastatin based on patient's condition and clinical evidence available and suggest an appropriate alternative statin which is able to give an equivalent lipid lowering effect as rosuvastatin.

**Keywords:** Pharmacist, rosuvastatin, statins, cost savings.

### INTRODUCTION

Statin use has increased sharply in recent years because high cholesterol level, heart disease, and diabetes are being diagnosed more frequently. Besides, there is more evidence for their effectiveness and relative safety has emerged and the indications for their use have been expanded in recent years. In addition, doctors have become more comfortable prescribing statin drug and they have been widely promoted and advertised to both doctors and the public. For example, rosuvastatin is approved for the treatment of high low-density lipoprotein, total cholesterol and triglycerides<sup>1, 2, 3</sup>. Rosuvastatin was billed as a super-statin during its clinical development, the claim was that it offered high potency and improved cholesterol reduction compared to other drugs in the class. However, this drug is quite expensive compared to other statin family.

Since rosuvastatin was introduced into the HUSM formulary, the prescribing rate of it by doctor has been highly increased and become a financial burden for the hospital. Thus, it was withdrawn from the formulary and now been classified as a non-standard drug (non-formulary drug) which needs a local purchase for prescribing. The request will be reviewed by the member of Research and Drug Information Unit (RDIU), Department of Pharmacy (justified or not justified) before being forwarded to the Hospital Director for appraisal. On approval, the requested drug shall be purchased by pharmacy for the individual patient as per request. The requesting physician shall be informed of the drug availability and supply will be made upon request with prescription or medication chart. In Hospital USM, Lipid Lowering Therapy USM Guidelines is available at <http://www.kck.usm.my/husm/pharmacy/formulary/index.htm><sup>4</sup>.

This study was done to test the hypothesis that there would be a potential drug cost savings from the pharmacists' intervention in switching from higher cost statin to lower cost statins. The objective of this study is to describe the pharmacist roles in making an assessment on the application of rosuvastatin based on the patient's condition and clinical evidence available.

### MATERIALS AND METHODS

A retrospective study with the use of record of non-standard drugs requests reviews that has been received by RDIU was undertaken. All reviews of rosuvastatin requests from March till September 2010 were studied. All the data were collected using a form. Six month study was done due to time limitation. The data assessment is based

on six-month drug cost comparison per rosuvastatin drug request which is not being justified by pharmacist. If rosuvastatin is not being justified by the pharmacist, the drug cost savings from purchasing rosuvastatin alone (not including ezetimide or fenofibrate) was obtained by deducting the total cost of other statins if rosuvastatin is not being justified by pharmacist from the total cost of rosuvastatin if being justified by pharmacist. Drug cost was evaluated based on current drug price. Descriptive analysis was done using SPSS Version 12.

### RESULTS

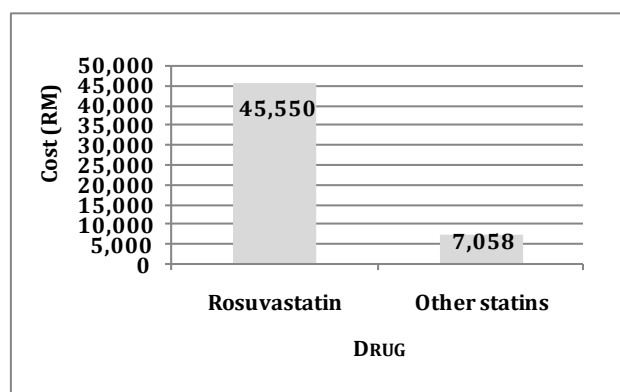
Seventy two patients were requested with rosuvastatin and 31 (43.1%) were female. The age for patients ranged from 9 to 75 years and the mean age (SD) was 52.7 (14.74). The total number of rosuvastatin requests reviewed by the member of RDIU was 72 with 36 requests being justified, 32 requests not justified and 4 requests could not be evaluated.

Based on total drug requests within six months, if all 72 rosuvastatin requests are being justified or approved, a total expenditure of RM 126,162 is needed. If 40 rosuvastatin requests (including requests that are justified by pharmacist and requests that could not be evaluated) are being approved, total cost of rosuvastatin will be RM 80,612.10. If 32 rosuvastatin requests that are not justified by pharmacist are being approved, total cost of rosuvastatin will be RM 45,549.90. Results suggest that drug utilization review by RDIU is able to reduce the total cost of expenditure on rosuvastatin (Table 1).

**Table 1: Cost of rosuvastatin based on total drug requests within six months**

Rosuvastatin requests, n = 72	Cost of rosuvastatin (RM)
Requests being justified, n = 36	RM 80,612.10
Requests could not be evaluated, n = 4	
Requests not justified, n = 32	RM 45,549.90
<b>Total</b>	<b>RM 126,162.00</b>

Based on drug requests that are not being justified, 32 requests, the acquisition cost of rosuvastatin is RM 45,549.90 if all requests are being justified by pharmacist and the acquisition cost is RM 7,057.68 if rosuvastatin is not being approved and substituted with other statins. Therefore, the acquisition cost difference between rosuvastatin and other statins is RM 38,492.22 (Figure 1).



**Fig 1: Cost of drugs based on drug requests that are not being justified by pharmacist**

## DISCUSSION

Statin therapy has been shown to reduce the risk of cardiovascular events and mortality across a number of well-designed, large-scale, long-term trials<sup>5</sup>. When a statin has been decided to be prescribed, it is recommended that a drug with a low purchase cost should usually be initiated in the therapy, taking into account required daily dose and product price per dose<sup>6</sup>. Any decision to suggest a higher intensity statin should take into account of patient's informed preference, comorbidities, multiple drug therapy, and the benefits and risks of treatment<sup>6</sup>. Since the LDL-C lowering ability of all statins are comparable<sup>4,7</sup> (Table 2) and can be switched when equipotent dosing of statin are used<sup>8</sup>, thus the cost of statins should be our main concern whenever statin is to be prescribed by choosing the lowest acquisition cost (Table 3).

**Table 2: Dose range and LDL-C lowering ability of statins**

Drug	Dose range (mg)	LDL-C reduction
Pravastatin	10 - 40	19 - 40 %
Simvastatin	10 - 80	28 - 48 %
Lovastatin	20 - 80	29 - 48 %
Atorvastatin	10 - 80	38 - 54 %
Rosuvastatin	10 - 40	52 - 63 %

**Table 3: Prices of statins from UKIDS (U), Department of Pharmacy, HUSM (All are generic statins except Rosuvastatin)**

Statin	Dose	Cost for 28 days
Atorvastatin	10 mg	RM 13.72
	20 mg	RM 16.24
Lovastatin	20 mg	RM 2.10
	40 mg	RM 3.04
Pravastatin	20 mg	RM 11.62
Rosuvastatin	10 mg	RM 77.28
Simvastatin	40 mg	RM 8.40

Based on drug requests that are not being justified, 32 requests, the total cost of rosuvastatin if these requests being justified by pharmacist is RM 45,549.90. The total cost of other statins (simvastatin/atorvastatin) when switching from rosuvastatin to other statins is RM 7,057.68. The total cost difference between rosuvastatin and other statin is RM 38,492.22. Study shows that there is an overall cost reduction of 84.5% if other statins such as atorvastatin or simvastatin are used instead of rosuvastatin.

A big amount of unnecessary hospital expenditure can be saved while the desired lipid lowering effect can still be achieved, at the same time the amount saved can be used to benefit more patient who need that allocation of health cost out there. Shifting from current rosuvastatin to other statin such as simvastatin, atorvastatin, or lovastatin may be considered in order to reduce the drug costs and at the same time maintain the intended lipid lowering effects. Thus, it is suggested that whenever a prescriber plan to initiate statin therapy for a patient with rosuvastatin or change from

other statin to rosuvastatin, lower cost statin which offer equivalent lipid lowering effect should be considered first.

There is a need for patient who is currently on rosuvastatin be reviewed on the appropriateness of switching rosuvastatin to other lower cost statins. However, before converting patient on rosuvastatin to other statin, we need to justify the rationale of the conversion. If patient have history of intolerance or adverse effect with simvastatin or atorvastatin, it is advised to continue with current rosuvastatin. If switch of rosuvastatin to other statins is justified, then appropriate statin is chosen and comparable conversion dose is determined based on current rosuvastatin dose. Patients overall cardiovascular risk and whether they have reached their LDL-C goal should be taken into consideration too<sup>5</sup>.

There are some limitations of this study. In this study, the data of the Hospital Director appraisal of the rosuvastatin requests was not collected to see if there is a difference in the justification by the pharmacist and approval by the Hospital Director. Besides, the impact of pharmacists' assessment on the application of rosuvastatin in terms of the clinical outcomes of lipid therapy was not investigated.

## CONCLUSION

In conclusion, pharmacists play an important role by critically review the need of rosuvastatin based on patient's condition and clinical evidence available and suggest an appropriate alternative statin which is able to give an equivalent lipid lowering effect as rosuvastatin.

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