SPECIALISTFOCUS-HYPERLIPIDEMIA

Managing Hyperlipidemia Every Patient, The Only Patient



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As mentioned in the earlier article on Lipid Disorders, this article will address the management of LDL as the single most important element in the prevention of coronary heart disease. The Ministry of Health Lipid management guidelines 2006 state: **"For the prevention of coronary heart disease, the first priority is the optimisation of low-density lipoprotein (LDL) level".** Hence, the lowering of LDL is the primary goal; while the lowering of triglycerides (TG) and the raising of high-density lipoprotein (HDL) are secondary goals.

The first step in managing each dyslipidemic patient is to establish the target cholesterol levels. As mentioned in the previous article, a detailed clinical assessment is important as it allows identification of cardiovascular risk factors which aid in risk stratification. Risk factors are additive in their effects. Hence, it is essential to adopt a global approach consisting of an evaluation and treatment of all existing risk factors.

Non-Modifiable Risk Factors

- Increasing age
- Male gender
- Family history of premature CHD
- Indian ethnicity

Modifiable Risk Factors

- Dyslipidemia
- Hypertension
- Diabetes mellitus
- ♦ Cigarette smoking
- Obesity
- Sedentary lifestyle
- ♦ Stress

The 3-step risk stratification is illustrated in **Figure 1**. The target cholesterol levels are set in accordance to an individual's risk group based on the MOH guidelines (**Figure 2**). Further, for very high risk patients (eg patients with established CHD and diabetes mellitus or multiple other risk factors), an "optional goal" of LDL-C < 2.1 mmol/L (80 mg/dL) may be considered.

It is well accepted through numerous large studies that HMG Co-A inhibitors, better known as statins, should be first-line in lowering LDL. In patients unable to take statins, bile acid sequestrants, niacin, or ezetimibe may be used, but the statins are by far still the most potent (**Figure 3**). Statin monotherapy lowers LDL by 25-63% compared to 15-30%, 6-25% and 18% respectively.

Figure 3 summarises the relative potencies of the different statins. Pravastatin has similar potency to lovastatin, but is more costly. As such, the former is not mentioned in this table. For ease of reference, the agents are grouped in bands based on the percentage change of LDL. The percentage change of the various cholesterol levels vary slightly from study to study. The values in Figure 3 were obtained from the individual package inserts. They reflect maximum percent change extracted from dose-finding or comparison trials, if the former is lacking. The reader is reminded that the relative potencies in this table should not be used as a direct dose-to-dose conversion but only as a guide.

However, it would be helpful to remember that each doubling of the dose of statins confers a further 5-6% reduction in LDL, while the addition of ezetimibe to any statin confers a further 15-18% reduction. It is noteworthy that equipotent doses of statins confer similar TG-lowering capacity (**Figure 3**). On the contrary, very high doses of atorvastatin 80mg daily or fluvastatin 40mg daily tend to decrease HDL compared with simvastatin, pravastatin and lovastatin as seen in the 1998 CURVES study. This would not be desirable as low HDL of < 0.9mmol/L is a cardiovascular risk factor.

Appendices A & B are algorithms we use in our Pharmacist's Clinic, and has been modified for this publication. The flowcharts are the suggested algorithms for patients presenting with raised LDL.

Finally, as in most other chronic diseases, medication is not the magic panacea. In managing hyperlipidemia, it is imperative to stress lifestyle changes like smoking cessation, weight management and compliance to a low-saturated fat diet as well as increased levels of physical activity. The patient's motivation should be assessed and each patient should be encouraged to take charge of their condition. Each patient's motivations are different, thus the saying, "Every patient, the only patient". It is important to work with the patient rather than *for* the patient. The power of goal setting together with the patient should not be underestimated. A sample of a goal chart is included in Figure 4. We list areas which require modification, and then get the patient to rank them according to what they think is the most to the least manageable. At each visit, we assess to see if each goal has been reached in order of priority. This has helped patients gain perspective of what is important, and, through education, empowerment, and continuing reinforcement at each visit, we can help patients attain their lipid goals.

continue on page 10

SPECIALISTFOCUS-HYPERLIPIDEMIA

continue from page 9

Figure 1: 3-step Risk Stratification

(taken from MOH Lipid Guidelines 2006)



Figure 2: Lipid Goal Levels

(taken from MOH Lipid Guidelines 2006)

	High Risk Group	Intermediate Risk Group	Low Risk Group			
LDL Cholesterol mmol/L (mg/dL)	< 2.6 (100)	< 3.4 (130)	< 4.1 (160)			
Triglyceride mmol/L (mg/dL)	< 2.3 (200)	< 2.3 (200)	< 2.3 (200)			
HDL Cholesterol mmol/L (mg/dL)	≥ 1.0 (40)	≥ 1.0 (40)	≥ 1.0 (40)			

Figure 3: Comparison of Potency

(for use in the Lipid Optimisation Pharmacist Clinic)

Drug	Dose	% ↓LDL	% ↓TG
Ezetimibe	10mg	19%	11%
Simvastatin	5mg	26%	12%
Lovastatin	20mg	27%	+ 9%
Simvastatin	10mg	30%	15%
Lovastatin	40mg	32%	8%
Simvastatin	20mg	38%	19%
Atorvastatin	10mg	39%	19%
Simvastatin	40mg	41%	28%
Lovastatin	40mg BD	42%	27%
Atorvastatin	20mg	43%	26%
Rosuvastatin	5mg	45%	35%
Ezetimibe / simvastatin	10mg / 10mg	45%	23%
Simvastatin	80mg	47%	33%
Atorvastatin	40mg	50%	29%
Rosuvastatin	10gm	52%	10%
Ezetimibe / simvastatin	10mg / 20mg	52%	24%
Rosuvastatin	20mg	55%	23%
Ezetimibe / simvastatin	10mg / 40mg	55%	23%
Atorvastatin	80mg	60%	37%
Ezetimibe / simvastatin	10mg / 80mg	60%	31%
Rosuvastatin	40mg	63%	28%

Mr Bala

Figure 4: My Goals Chart

(for use in the Lipid Optimisation Pharmacist Clinic)

	My Goal(s)	Options (Date)	My choice / Priority	Pharmacist	Signature & Date	Follow-up Date	Goal attained?	
1	Diet (take less nasi lemak and fried food)		3				Yes / No	
2	Increase Exercise (increase to 2 - 3 times weekly)		1				Yes / No	
3	Reduce smoking (cut from 20 to 10 per day)		4				Yes / No	
4	Regularly take medicine		2				Yes / No	

continue from page 10

Appendix A Titration Algorithm (TG \leq 4.5mmol/L)



Adapted from Annals of Pharmacotherapy 2002; 36:892-904. Updated April 2007.

SPECIALISTFOCUS-HYPERLIPIDEMIA

continue from page 11

Appendix B Titration Algorithm (TG > 4.5mmol/L)

