EVALUATION OF INAPPROPRIATE USE OF GEMFIBROZIL IN AN OUTPATIENT DEPARTMENT AT NON-SPECIALITY HOSPITAL

Chin Hui Ng

ABSTRACT

Background: Hypertriglyceridemia may increase risk of pancreatitis and it is also a risk factor for cardiovascular diseases. In Malaysia, gemfibrozil is commonly used to treat hypertriglyceridemia even though it is categorized as specialists' item in Drug Formulary Ministry of Health. The objective of the study is to evaluate the appropriate of use Gemfibrozil among medical officer in this hospital.

Materials and Methods: It is an observation retrospective study. A comparison between the guideline of management hypertriglyceridemia with the treatment plan for patient who newly prescribed gemfibrozil. The outcome measurement was the percentage of patients who were treated adherence to the suggested clinical practice guideline of management hypertriglyceridemia

Result: It was found around 10% patients with normal triglyceride levels were prescribed gemfibrozil. All of the patients who newly prescribed with an under dose of gemfibrozil (<900mg/day). None of the patients were in the severe and very severe hypertriglyceridemia. It was found that 39% and 50% of patients were newly diagnosed with mild and moderate triglyceride level approximately.

Conclusion: Awareness of adherence to clinical practice guideline of hypertriglyceridemia should be promoted. Cooperation between multidisciplinary is a necessary for ensuring the appropriate use of Gemfibrozil when treating patient with abnormal triglyceride level.

Keywords: Gemfibrozil, appropriate, guideline
1.0 Introduction

Risk of pancreatitis and cardiovascular disease may increase for patient with high triglyceride level (hypertriglyceridemia). Triglycerides level is divided into five categories which are normal (<1.7mmol/l), mild hypertriglyceridemia (1.7-2.3mmol/l), moderate hypertriglyceridemia (2.3-11.2mmol/l), severe hypertriglyceridemia (11.2-22.4mmol/l) and very severe hypertriglyceridemia (>22.4mmol/l) (Berglund et al, 2012). Diet, physical activity and weight reduction are recommended for patient mild to moderate hypertriglyceridemia (Berglund et al, 2012). Drug treatment should introduce to patient with severe and very severe hypertriglyceridemia (Berglund et al, 2012). The drug classes use for hypertriglyceridemia are fibrates (first line agent), niacin and n-3 fatty acids. They can use either in combination with statins or alone to reduce the risk of triglyceride induced pancreatitis (Berglund et al, 2012). However, statins are not recommended to be used as monotherapy for patient with severe and very severe hypertriglyceridemia (Berglund et al, 2012).

In Malaysia, Ministry of health categorized all medication into six categories which are A* (Consultant or specialists for specific indications only), A (consultant or specialists), A/KK (consultant or specialists or family physicians speciliats), B (medical officers), C (paramedical staff) and C+ (paramedical staff doing midwifery). All statins group is categorized in A category in Drug Formulary Malaysia except Lovastatin. At 2014, simvastatin was categorized as B when Lovastatin was taken out from Drug Formulary. Whereas, all fibrates (Gemfibrozil and Fenofibrate) are categorized in A* which is only can be prescribed by specialists and consultants from Medical Department. Therefore, the used of medications for dyslipidemia is very limited for medical officers.

On another hand, most of the patients in Malaysia are visited health clinics or outpatient department at district hospital which run by medical officers. These patients with hypertriglyceridemia are received treatment plan from the medical officers working at there. Patients only will be referred to specialists who working at General Hospital when patients with uncontrolled lipid profile after medications. Therefore, Gemfibrozil is unavoidable to be prescribed even it is categorized as specialists’ item in Drug Formulary Ministry of Health. In this study, the objective of the study is to evaluate the appropriate of use Gemfibrozil among medical officer in this hospital.

2.0 Materials and Methods

It is an observation study which retrospectively review for those patients with newly prescribed Gemfibrozil in Outpatient Kuala Kangsar Hospital between October and December 2013. The practice of prescribing Gemfibrozil in the setting was observed and compared with the clinical practice guideline of management hypertriglycerimia.

Sample size

The study was conducted with convenience sampling to collect sample size. The common prescribed dose of Gemfibrozil in Kuala Kangsar Hospital is either 300mg or 600mg daily. The month usage of Gemfibrozil is 1580 boxes, which assume at least 1000 patients were prescribed Gemfibrozil (including monthly refilled patients). The sample size was recommended is 280 patients to achieve 95% confidence level (Epi info ™ 7). However, only
51 patients were fulfilled the inclusion criteria.

Inclusion and exclusion criteria

Inclusion criteria
- All patients with dyslipidemia who were newly prescribed Gemfibrozil
- Patients have cholesterol profile before and after prescribed Gemfibrozil.

Exclusion criteria
- Patient with metabolic syndrome diseases like diabetes.

Study Location

The study was carried out at Kuala Kangsar Hospital, is a district hospital which provides primary care service to all the residents in Kuala Kangsar.

Outcome Measurement

It was measured the percentage of patients who were treated accordingly to the suggested clinical practice guideline

3.0 Result

51 of patients were fulfilled the inclusion criteria. It was found that 93% (47) of patients were treated in combination with statins. However, none of these patients prescribed 900mg to 1200mg Gemfibrozil. All of these patients were prescribed under dose. Table 1 shows the demographic of patients and patients' triglycerides level profile before introducing gemfibrozil.

<table>
<thead>
<tr>
<th>Patient demographic</th>
<th>Total patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>3</td>
</tr>
<tr>
<td>41-50</td>
<td>6</td>
</tr>
<tr>
<td>51-60</td>
<td>14</td>
</tr>
<tr>
<td>61-70</td>
<td>19</td>
</tr>
<tr>
<td>&gt;70</td>
<td>9</td>
</tr>
<tr>
<td>Patients' triglycerides profile before introducing gemfibrozil</td>
<td></td>
</tr>
<tr>
<td>Patients with normal TG (&lt;1.7mmol/l)</td>
<td>6</td>
</tr>
<tr>
<td>Patients with mild hyperTG (1.7-2.3mmol/l)</td>
<td>20</td>
</tr>
<tr>
<td>Patients with moderate hyperTG (2.3-11.2mmol/l)</td>
<td>25</td>
</tr>
<tr>
<td>Patients with severe hyperTG (11.2-22.4mmol/l)</td>
<td>0</td>
</tr>
<tr>
<td>Patients with very severe hyperTG (&gt;22.4mmol/l)</td>
<td>0</td>
</tr>
</tbody>
</table>
It was found that inappropriate use of gemfibrozil happened in the study setting. 6 out of 51 patients were prescribed gemfibrozil even though they had a normal triglycerides level. Moreover, patient with mild elevated triglycerides level should introduce the nonpharmacology treatment like lifestyle modification (Berglund et al, 2012), but these patients in the study setting received gemfibrozil in their treatment plan.

4.0 Discussion

American College of Cardiology/ American Heart Association (ACC/AHA) suggested targeting on LDL-C for Dyslipidemia patient. Moreover, additional lower non HDL-C including triglycerides when LDL-C target achieved (40-80mg/dl) did not help in reducing atherosclerotic cardiovascular disease (ASCVD) risk (ACC/AHA, 2013). On another hand, full cholesterol profile is only reserved for patients with a total cholesterol equal or more than 6 in the study setting. The rest of patients have only total cholesterol and triglycerides (TG) level. A clear picture cholesterol profile was absence when treating the patient. Consequently, the prescribers may target to reduce triglycerides level even patient's triglycerides level is mild or moderate. It may underestimate the cardiovascular (CV) risk and the need for lifestyle modification because it will hide the LDL-C and HDL-C abnormalities (Menown et al, 2009).

From the finding, many patients in the study setting were not adequately treated. First, it was unable to found a precise indication for prescribing gemfibrozil in most of the subjects in the study. Inappropriate use or unnecessary prescribed gemfibrozil occurred in the setting. Consequently, this may increase the expenditure especially in the drug cost. This situation was similar in New Territories Cluster's General Outpatient Clinics in Hong Kong. The study found that only 13.1% of patients (TG level > 5.6mmol/l) fitted with the criteria of prescribing Gemfibrozil (Kenny K., Augustine L.& Philip K. T. L., 2005). The daily cost of treatment with Gemfibrozil in Hong Kong was much cheaper compare with statin (Kenny et al., 2005). In Malaysia, the daily cost of treating with Gemfibrozil (RM 0.41/ Capsule) is much more expensive compared with statins. For example, simvastatin 20mg is only Rm 0.20 per tablet and simvastatin 40mg is only RM0.30 per tablet (" Drug Price", 2013). Moreover, these patients with Gemfibrozil unable received additional secondary prevention which may incur a higher cost especially indirect costs such as hospitalization rates, patient morbidity and mortality rate (Kenny et al., 2005).

Secondly, it became more worry when those patients with mild and moderate triglycerides levels were not figure the secondary causes. Identification of secondary causes of hypertriglyceridemia is very important. The prescribers should understand that elevation of triglycerides may due to endocrine disorders disease like untreated diabetes mellitus, rare genetic diseases like loss of adipose tissue and consumption of certain medications like thiazide diuretics and olanzapine (Berglund et al, 2012). Besides, high carbohydrate and fat diet and obesity also a main secondary cause of hypertriglyceridemia (Sandhu S., Al-Sarraf A., Taraboanta C., Frohlich J., Francis G.A., 2011; ACC/AHA, 2013). These secondary causes of elevation triglyceride should be evaluated and treated appropriately before introduced any fibrates (ACC/AHA, 2013).

Lastly, at least 45 patients in the present study may benefit from non-pharmacological interventions. Lifestyle modification like diet and physical activity is very important for patient with mild and moderate elevated triglyceride level especially TG level between 2.2
mmol/l and 5.6mmol/l (Berglund et al, 2012; Kenny et al., 2005). Therefore, appropriate counseling for the patients during discussing treatment plan is necessary. Fibrate should be considered for patient with severe and very severe hypertriglyceridemia (Berglund et al, 2012). Besides, mild and moderate elevated triglyceride levels can be reduced by statins. In overall, statins able to reduce 10% to 20% of triglyceride level (Miller, n.d.). Therefore, the medical officers should consider increasing the dose of statins instead of immediately introduced gemfibrozil to patients.

No doubt, many prescribers will relate the moderate hypertriglyceridemia with the risk factor for cardiovascular diseases. The benefit of fibrate therapy is debated in reducing ASCVD risk. Firstly, the TG level for risk factor rose from 2.3mmol/l to 9.0mmol/l (Yuan G., Al-Shali K.Z., and Hegele R.A., 2007). Secondly, the patient with moderate hypertriglyceridemia frequently associated with other risk factors for cardiovascular diseases (Yuan et al., 2007). Thirdly, the therapy for dyslipidemia should be attaining the LDL-C even when TG level exceeded 1.7mmol/l (Yuan et al., 2007; ACC/AHA, 2013).

Inappropriate prescribing is an issue over the global during practice in health care system. Many factors contributed inappropriate use of medications. One of the main reason is the difficulty among medical officers to practice accordance with guideline. This may due to lack of awareness and knowledge among medical officers, the attitudes of practitioners like lack of awareness and agreement and practitioners’ behavior and familiarity (Cabana et al, 1999).

In this study, it was identified that lack of awareness and not familiar with the guideline may be the barriers for prescribers to adherence clinical practice guideline. Prescribers may not aware or familiar with the guideline. Most of the healthcare professionals always familiar with dyslipidemia guideline which published by American College of Cardiology/American Heart Association (ACC/AHA) but they may not familiar with the guideline of management hypertriglyceridemia. In ACC/AHA guideline, management of hypertriglyceridemia is not much informative. LDL-C goal is always targeted according to the guideline because it may reduce atherosclerosis cardiovascular diseases (ASCVD) risk. Moreover, the guideline claimed that no data was shown that. Therefore, most of the medical officers may not familiar or aware of the management of hypertriglyceridemia.

Besides, another possibility is the medical officers may understand the existing of the guideline but they may not agree with the guideline in some sort of practice or theory. This also contributed they did not practice according to the guideline. It is believed that this is not the main barrier for them to practice accordance to the suggested guideline.

All of the medical officers working in the study setting only have 2 or 3 years working experience. Other words, they are just completed their internship. It is a lack of supervisor's guidance during practice in the study setting. Therefore, they may be inherited the previous practice from other healthcare setting to the study setting. Besides, medical officers may not interest to change the previous treatment plan for the patients when they have a high workload in the setting. Moreover, it was found that changing behavior, especially in adopting guideline was difficult (Cabana et al., 1999). The time limitation per patient may affect them to change the treatment plan.
5.0 Conclusion and recommendation

In conclusion, some of the barriers can be overcome to achieve appropriate use of medications. Appropriate interventions should be implemented and the intervention should be tailored based on the setting to ensure the success. Besides, cooperation between multidisciplinary should create to ensure the guideline of management hypertriglyceridemia is fully introduced into practice. Moreover, appropriate use of gemfibrozil may save the drug expenditure.

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Declaration

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References


