A Proposed Algorithm of Screening and Management of Lipids in Adults for Iranian Family Physicians

Seyyed Esmaeil Managheb[1], MD; Mahmood Soveid[2], Mohammad Kasaei[3], MD

Dear Editor

Cardiovascular disease (CVD) due to atherosclerosis is the foremost cause of premature mortality and of disability-adjusted life years (DALYs) in developed and developing countries.[1] The associated mortality is preventable through treatment of dyslipidemia.[2] Over half of the first CHD events and 3/4 of CHD deaths are preventable by controlling the risk factors, including diet, exercise, weight and blood pressure control; prescription of aspirin and tobacco cessation; and lowering lipids.[3] Dyslipidemia covers the broad spectrum of lipid abnormalities.[4] However, elevations of the total cholesterol and low density lipoprotein cholesterol (LDL-C) have received the most attention.[4] Epidemiologic data revealed that about 70 million Americans had elevated levels of LDL cholesterol between 2005 and 2008.[5] Abnormalities in lipid components are prevalent in Iran and they are more common among men in urban areas. Urbanization, unhealthy diet and sedentary lifestyle are the underlying reasons for the high prevalence of dyslipidemia in Iran.[4] Dyslipidemias may be related to other diseases (secondary dyslipidemias); therefore, secondary causes of abnormal lipid levels should be considered first and treated when appropriate.[6]

The primary target in treating dyslipidemia has been and will probably continue to be LDL cholesterol because it is the most atherogenic lipoprotein which correlates more closely than other lipids with CHD.[7] Statin therapy is likely to continue to be emphasized because they are the most effective lipid-lowering agents for reducing LDL cholesterol concentrations, and their efficacy for lowering the risk for cardiovascular events has been proven.[8] Every 1.0 mmol/L (40 mg/dL) reduction in LDL-C is associated with a corresponding 22% reduction in CVD mortality and morbidity.[9] Patients with an elevated LDL-cholesterol level should begin the Therapeutic Lifestyle Changes program as well as an individualized program of regular exercise. Lifestyle modifications include diet, aerobic exercise, weight control, smoking cessation, evaluation of alcohol consumption; and a nutritional supplement containing sitostanol ester, a saturated derivative of plants' seed oil.[6] Diet and exercise are the cornerstones of treatment for asymptomatic patients with dyslipidemia.[6] Smoking cessation reduces coronary event rate by about 50% within one to two years of stopping. Among the benefits of smoking cessation is a 5-10% increase in HDL-C.[3] Clinicians should initiate statin therapy regardless of LDL, in patients with established ASCVD. Statins are the drugs of choice for lowering LDL-cholesterol, and aggressive treatment with statins should be pursued.[6] Large scale clinical event trials include lovastatin, pravastatin, simvastatin atorvastatin, and rosuvastatin.[3] Statin Dose Intensity is shown in Table 1.[3]

Family physicians should check baseline liver function tests (LFTs), especially ALT, before initiating statin therapy. If baseline liver function tests (LFTs) are normal, no further monitoring is required. If baseline LFTs are mildly abnormal (over the upper limit of normal but <5 X upper limit of normal), reassess LFTs after 6-12 weeks of statin treatment for stability. Consider monitoring annually for stability if baseline LFTs is abnormal.[3] If a patient is intolerant to a statin, clinicians are encouraged

[1]Quality Improvement in Clinical Education Research Center, Education Development Center, Shiraz University of Medical Sciences, Shiraz, Iran;
[2]Department of Internal Medicine, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran;
[3]Department of cardiovascular medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Correspondence:
Seyed Esmaeil Managheb, MD;
Quality Improvement in Clinical Education Research Center,
Education Development Center,
Shiraz University of Medical Sciences,
Shiraz, Iran
Tel: +98-71-32122419
Email: managheba@sums.ac.ir
Received: 25 October 2015
Revised: 12 November 2015
Accepted: 2 December 2015

Table 1: Dosage for LDL-C reduction

Statin therapy	LDL-C reduction	Rosuvastatin	Atorvastatin	Simvastatin	Lovastatin
High-intensity	≥50%	20-40mg/d	40-80mg/d	----------	----------
Moderate-intensity	30%-50%	5-10mg/d	10-20mg/d	20-40mg/d	40-80mg/d
Low-Intensity	<30%	----------	----------	5-10mg/d	10-20mg/d

to have the patient try the other statins before ruling them all out.[6]

The main intolerance issues with statins pertain to adverse muscle effects.

Safety considerations in prescribing statins in primary care settings are:

1- Check baseline renal function prior to initiating statin therapy.

2- Check ALT or AST levels prior to prescribing a statin and as clinically indicated after initiation.

3- Drug-drug interactions

4- Provide patient education regarding recognition and reporting of symptoms of myopathy during statin therapy.

5- Counsel the patients to discontinue statin therapy during a short course of a macrolide or ketolide antibiotic.

6- Suspect myopathy when a statin-treated patient complains of unexplained, generalized muscle pain, tenderness or weakness.

7- Check CK levels when a patient reports symptoms of myopathy.

8- If CK levels are abnormal and less than five times the upper limit of normal, repeat measurement in one week.

9- If CK levels are elevated to five times the upper limit of normal or greater, discontinue statin therapy and monitor the serum CK levels.

10- Assess for signs of dehydration or renal compromise in patients with myopathy.[6]

Triglycerides have been associated with an increase in coronary events. Patients with severe triglyceride elevation (>500 mg/dl) despite lifestyle modifications can be considered for drug therapy to prevent acute pancreatitis. Fenofibrate is the preferred fibrate for triglyceride lowering and can be used concomitantly with low- or moderate-intensity statin therapy. Fish oil supplements containing DHA and/or EPA can alternatively be used for lowering triglyceride. Gemfibrozil should not be initiated for lowering triglyceride in patients taking statins due to the increased risk for muscle symptoms and rhabdomyolysis.[3] Response to therapy can be assessed at 6–8 weeks from initiation or dose increases for statins, but response to fibrates and lifestyle may take longer. Studies have shown that less than half of the adults with high LDL-C receive effective treatment.[3] Poor adherence can limit the effectiveness of therapies. In asymptomatic conditions such as hyperlipidemia, this can be especially problematic. Long-term adherence to drug therapy for chronic conditions is estimated to be only about 50%. Some factors associated with poor adherence are the number of drugs, complexity and frequency of drug administration, adverse side effects, asymptomatic conditions, cost and psychosocial problems.[6] Good relationships between the patients and their healthcare providers are therefore imperative for good adherence. Empathetic and non-judgemental attitude and assistance, availability, and good quality of communication and interaction are some of the important attributes of healthcare professionals that have been shown to be determinants of the adherence of patients.[10] The importance of lipid modification, the high number of people involved, and the continuous nature of therapy means that lipid management has become an everyday primary care discipline. Most patients with dyslipidemia can be investigated and treated effectively by family physicians in primary care without referral to a specialist.[11] Family physicians are the front-line of health care and they want to give their patients the best possible care. One way of supporting implementation of evidence is through evidence-based clinical practice guidelines (CPGs).[12] So dyslipidemia are prevalent in Iran, and health care organizations in Iran should execute well-defined programs to control dyslipidemia in the general population.[4] Compiling clinical guidelines is one of the requirements of family physician plan and classification of health care services.[13] Cardiovascular risk assessment has been shown to help primary health care providers identify patients who most likely benefit from primary prevention therapies such as treatment of dyslipidemia.[2] A downloadable spreadsheet enabling estimation of 10-year and lifetime risk for ASCVD and a web-based calculator are available at http://my.americanheart.org/cvriskcalculator an http://www.cardiosource.org/science and-quality/practice-guidelines-and-quality-standards/2013-prevention-guideline-tools.aspx[3]

This Algorithm addresses the recommendations on lipid screening and treatment for prevention of cardiovascular events and mortality in patients aged 20-79 years. Screening and management of lipids in adults is shown in Figure 1.[3,6]

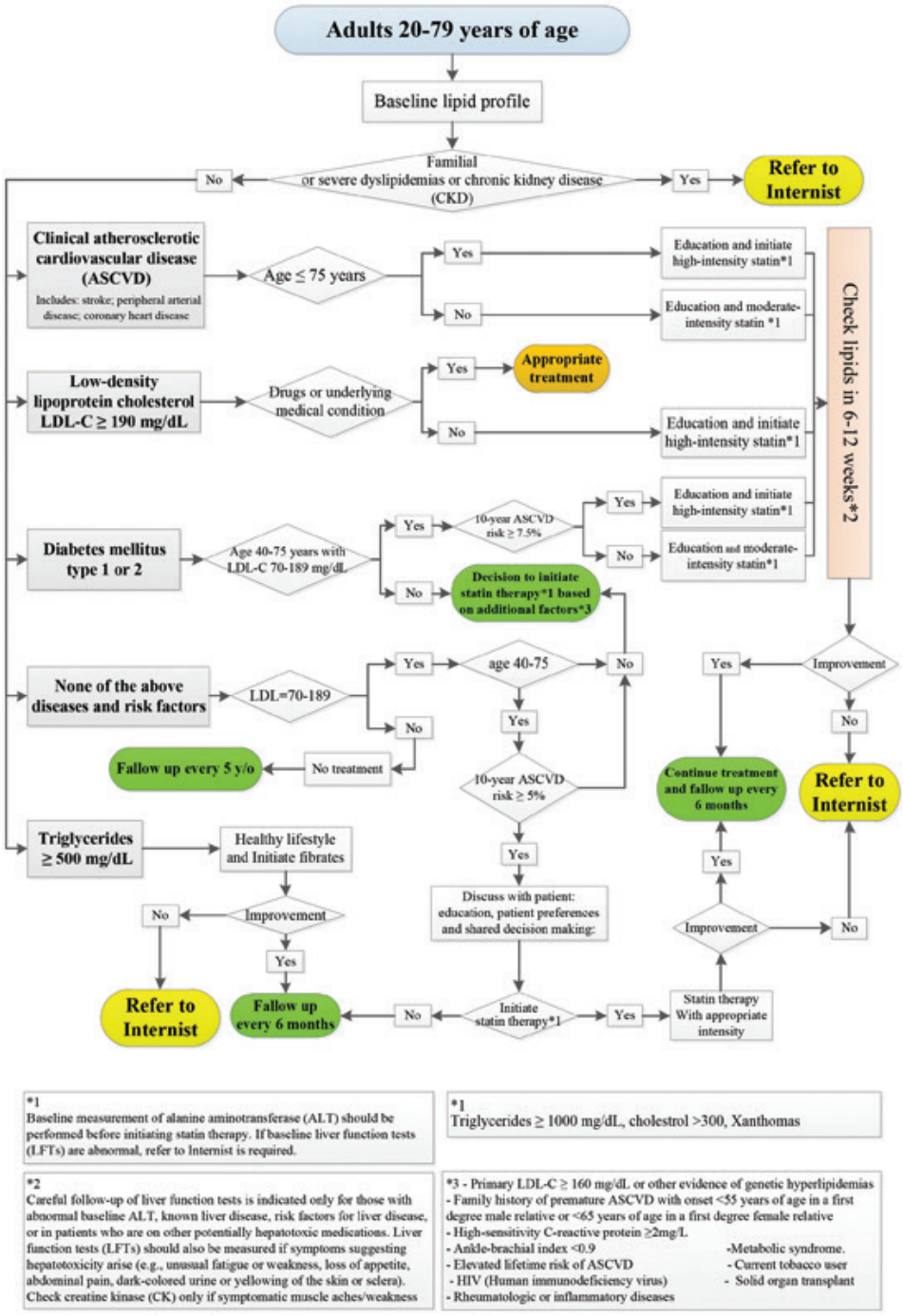

Figure 1: Algorithm of Screening and Management of Lipids in Adults

Please cite this article as: Managheb SE, Soveid M, Kasaei M. A Proposed Algorithm of Screening and Management of Lipids in Adults for Iranian Family Physicians. J Health Sci Surveillance Sys. 2016;4(1):50-53.

Conflict of Interest: None declared.

Resources

1 Reiner ZE, Alberico L, Backer G, Graham I, Taskinen MR, Wiklund O , et al. The ESC/EAS Guidelines for the management of dyslipidaemias. Eur Heart J 2011; 32: 1769-818.

2 Anderson TJ, Grégoire J, Hegele RA, Couture P, Mancini J, McPherson R, et al. 2012 Update of the Canadian Cardiovascular Society Guidelines for the Diagnosis and Treatment of Dyslipidemia for the Prevention of Cardiovascular Disease in the Adult. Canadian Journal of Cardiology 2013; 29: 151-67.

3 Fan LA, Fenske JN, Harrison RV, Jackson EA, Marcelino MA. Screening and Management of Lipids. Guidelines for Clinical Care Ambulatory. UMHS Lipid Therapy Guideline 2014: 1-20. Available: www.med.umich.edu/.../lipids/lipidsupdate.pdf

4 Tabatabaei-Malazy O, Qorbani M, Samavat T, Sharifi F,

Larijani B, Fakhrzadeh H. Prevalence of Dyslipidemia in Iran: A Systematic Review and Meta-Analysis Study. Int J Prev Med 2014; 5(4): 373–93.

5 Centers for Disease Control and Prevention (CDC). Vital signs: prevalence, treatment, and control of high levels of low-density lipoprotein cholesterol--United States, 1999-2002 and 2005-2008. MMWR Morb Mortal Wkly Rep 2011; 60(4): 109-14.

6 Woolley T, Canoniero M, Conroy W, Fareed M, Groen S, Helmrick K, et al. Institute for Clinical Systems Improvement. Lipid Management in Adults. Updated November 2013. www.icsi.org

7 7- Mcbride P, Neil J, Stone NJ, Blum CB. Yes: Implementing the New ACC/AHA Cholesterol Guideline Will Improve Cardiovascular Outcomes. Am Fam Physician 2014; 90(4): 213-16.

8 Grundy SM, Cleeman JI, Merz CN, Brewer HB, Clark LT, Hunninghake DB, et al. National Heart, Lung, and Blood Institute; American College of Cardiology Foundation; American Heart Association. Implications of recent clinical trials for the National Cholesterol Education Program Adult Treatment Panel III guidelines. Circulation 2004; 110: 227-39.

9 Cholesterol Treatment Trialists' (CTT) Collaboration. Efficacy and safety of more intensive lowering of LDL cholesterol: a meta-analysis of data from 170000 participants in 26 randomised trials. Lancet 2010; 376: 1670-81.

10 Reiner Z, Sonicki Z, Tedeschi-Reiner E. Physicians' perception, knowledge and awareness of cardiovascular risk factors and adherence to prevention guidelines: the PERCRO-DOC survey. Atherosclerosis 2010; 213: 598-603.

11 Morrell J, Wierzbicki T. 10 Steps before you refer for: Lipids. Br J Cardiol 2009; 16: 242-5.

12 Turner T, Misso M, Harris C, Green S. Development of evidence-based clinical practice guidelines (CPGs): comparing approaches. Implementation Science 2008; 3: 45. http://www.implementationscience.com/content/3/1/45

13 Managheb SE, Shams M, Soveid M, Imanieh MH, Moghadami M. Screening Type 2 Diabetes: A Clinical Guide for Family Physicians. J Health Sci Surveillance Sys 2015; 3(3): 125-7.