

Myths & Facts – Dyslipidemia

(Abstracts from Literature)

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**Myth -
Dyslipidemia and other cardiovascular risk factors are not prevalent in children with type 2 diabetes mellitus.**

Fact -

While type 1 diabetes historically has been more common in patients 8 to 19 years of age, type 2 diabetes is now emerging as an important disease in this age group. Currently, type 2 diabetes accounts for 8% to 45% of new childhood diabetes. Diabetes microvascular complications and cardiovascular risk factors, including dyslipidemia and hypertension have been observed in pediatric patients with type 2 diabetes. Besides this, evidence indicates that primary prevention of cardiovascular disease should begin in childhood.¹

Studies have evaluated the prevalence of dyslipidemia in a population of youth with type 2 diabetes mellitus (T2DM) and to examine the relationship between the lipid parameters and other known cardiovascular risk factors. According to studies atherogenic lipid profiles are common in youth with T2DM. Elevated apoB levels with normal LDL-c levels highlight the importance of a full lipid panel including apoB in defining potential modifiable cardiovascular risk in this population with high rates of

obesity, smoking, and poor glycemic control.² The table presents consensus-based recommendations for monitoring lipid levels in youths.¹

- Optimal levels are: LDL cholesterol <100 mg/dl (2.60 mmol/L); high-density lipoprotein cholesterol >35 mg/dL (0.90 mmol/L); and triglycerides < 150 mg/dL (1.70 mmol/L).
- A lipid profile should be obtained at diagnosis, after glucose control is established; if lipids are at optimal levels, repeat lipid profile every 3 to 5 years.
- If the LDL cholesterol level is > 100 mg/dL, prescribe an exercise plan and healthy diet; if goals are not reached after 6 months of diet and exercise, consider statin* therapy for patients with an LDL cholesterol level of 130 to 159 mg/dL (3.35 to 4.10 mmol/L), and begin medications for patients with an LDL cholesterol level of 160 mg per dL (4.15 mmol/L or greater).

“As atherogenic lipid profiles are common in youth with T2DM in 2003, the ADA developed an additional consensus guideline for the management of dyslipidemia, and the American Heart Association developed a guideline on the primary prevention of atherosclerotic cardiovascular disease in youth.”

References:

- 1 Kevin Peterson, et al. Management of type 2 diabetes in youth: An update. Am Fam Physician 2007;76:658-64,665-6.
- 2 Sellers EA, Yung G, Dean HJ. Dyslipidemia and other cardiovascular risk factors in a Canadian First Nation pediatric population with type 2 diabetes mellitus. Pediatr Diabetes 2007;8(6):384-90.

Myth –
Aggressive treatment of diabetic dyslipidemia will not reduce the burden of atherosclerotic disease.

Fact -

Diabetes mellitus type 2 (DM type 2) is a common disease that is associated with high mortality and morbidity due to macrovascular and microvascular complications. CHD mortality and morbidity is 2 to 3 times higher in diabetic than in nondiabetic patients. There is widespread atherosclerosis in diabetes and there are many potentially atherogenic factors in diabetes, these may underlie this problem. Except major risk factors (high serum cholesterol concentration, hypertension, cigarette smoking), insulin resistance is common in DM type 2 patients. The dyslipidemic component of insulin resistance is “atherogenic lipoprotein phenotype.” Its components include small LDL particles (pattern B) with higher atherogenic risk.

Several recent studies have demonstrated the preponderance of small, dense LDL in patients with DM type 2 and IR. The question of whether small, dense LDL

can be explained by triglyceride levels alone or whether it is directly related to DM type 2 and insulin resistance is still the subject of debate. If serum triglycerides exceed 1.3 mmol/l, small, dense LDL increases. The practical implication is that serum triglyceride levels should be maintained as low as possible to prevent the deleterious effects of triglycerides on LDL subclass distribution and size.

There are several potential mechanisms to explain the increased atherogenicity of dense LDL (small dense LDL is more susceptible to lipid peroxidation and oxidation leading to its increased uptake by macrophages and subsequent removal by scavenger pathway, also has a lower binding affinity to LDL receptors). So theoretical grounds postulate that the treatment of diabetic dyslipoproteinemias would reduce atherosclerosis disease.

“There are many potentially atherogenic factors in diabetes and on theoretical grounds, treatment of diabetic dyslipoproteinemias would reduce atherosclerosis disease.”

Reference:

1. Fabryova L, and Cagan S. Relation between insulin resistance and small, dense lipoproteins with low density and this development of atherosclerosis in type 2 diabetes mellitus. Bratisl Lek Listy 1998;99:138-4