

Prevalence and Determinants of Dyslipidaemia among Children and Adolescents in India: Findings from a Large Representative Survey

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Introduction

It is estimated that 31% of all deaths globally i.e. 17.5 million deaths occurred due to cardiovascular disease in 2014 [1]. In India, mortality due to cardiovascular disease was expected to rise by 103% in men and by 90% in women from 1985 to 2015 [2].

Dyslipidaemia is defined as abnormal plasma lipid levels [3]. Dyslipidaemia is the disorder of lipoprotein metabolism that result in elevated levels of total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides, or decreased high-density lipoprotein cholesterol (HDL-C) [4]. Dyslipidaemia is a primary, widely established as an independent major risk factor for coronary artery disease (CAD) and may even be a prerequisite for CAD, occurring before other major risk factors come into play [5]. It is, therefore, considered as an important modifiable risk factor for cardiovascular disease (CVD) and leading cause of morbidity and mortality worldwide [6].

There is a strong pathophysiological association of raised LDL cholesterol with initiation and progression of coronary atherosclerosis. Robust data are available that shows that lowering its levels can regress and stabilize atherosclerotic vascular disease. Similar, though not as robust, data are also available for raised triglycerides and low HDL cholesterol. Studies have reported that atherosclerosis begins silently during childhood [7]. Fatty streaks - the precursors of mature atherosclerotic lesions - are the first visible arterial lesions as reported in autopsy studies [8]. Pathogenesis of atherosclerosis is related to total cholesterol levels. Reduced serum high-density lipoprotein cholesterol level and increased serum low-density lipoprotein cholesterol level are independent risk factors for cardiovascular disease [9].

The link between childhood dyslipidaemia and occurrence of

atherosclerosis and its sequels in adulthood are well-documented [10-13]. Considering that the number of children at risk of developing cardiovascular disease is increasing, there has been no population-based study from India to determine the prevalence of dyslipidaemia. Few hospitals based and school-based studies with limited samples from India report the prevalence of dyslipidaemia among children and adolescents ranging from 10% - 70% [14-22].

With this background, this study aims to determine the prevalence of dyslipidaemia and its association with socio-demographic characteristics and clinical and laboratory findings in children and adolescent from India.

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