

Nutritional screening of middle aged Indians with special emphasis on Lipoprotein (a) levels for risk prediction of cardio-vascular diseases

■ RITU MATHUR AND MANIKA MATHUR

Received: 10.09.2012; Revised: 26.10.2012; Accepted: 28.11.2012

See end of the paper for authors' affiliations

Correspondence to :

RITU MATHUR

Department of Food Science and Nutrition, Maharshi Dayanand Saraswati University, AJMER (RAJASTHAN) INDIA

Email: driritumathur@gmail.com

■ **ABSTRACT** : Cardio-vascular diseases (CVD) account for high morbidity all over the world. Risk factors include age, sex, hypertension, smoking, diabetes, high LDL and low HDL cholesterol levels. Elevated lipoprotein (a) is an emerging independent risk factor in the development of cardio-vascular diseases. The study aimed at assessing the risk factors in the development of cardio-vascular diseases, with emphasis on elevated lipoprotein (a) levels in middle aged Indians (40-60 years). A standardized score based questionnaire was used to calculate the total cardio-vascular risk. Biochemical analysis was done using a fully automated analyzer. Biochemical analysis revealed that lipoprotein (a) and cholesterol levels in all the subjects (n=40) were higher than normal, indicating their being at higher risk of cardio-vascular diseases. About 62.5 per cent of the subjects had Lp(a) levels higher than normal. Women had higher Lp (a) levels as compared to men. Lp(a) was seen to be highly correlated with triglyceride levels. Increased knowledge of the role of Lp(a) as a risk factor for CHD would be of great benefit. Because Lp(a) is genetically determined, we also recommend further studies to examine the relationship between family history of CHD and Lp(a) levels.

■ **KEY WORDS** : Cardio-vascular disease, Nutritional screening, Risk factors, Lipoprotein (a) [Lp(a)], Middle aged Indians

■ **HOW TO CITE THIS PAPER** : Mathur, Ritu and Mathur, Manika (2012). Nutritional screening of middle aged Indians with special emphasis on Lipoprotein (a) levels for risk prediction of cardiovascular diseases. *Asian J. Home Sci.*, 7 (2): 479-481.

Cardio-vascular diseases (CVD) are caused by disorders of the heart and blood vessels and includes coronary heart diseases (CHD), cerebro-vascular disease (stroke), raised blood pressure, peripheral artery disease, congenital heart disease and heart failure. Projections to the year 2020 indicated an increase in the number of CVD cases, majority from such cases will be from developing countries including India (WHO, 2002)

Among non-communicable diseases (NCDs), CVD is the leading cause of death and ischemic heart disease (IHD) and strokes are the major contributors to CVD. Worldwide, 80 per cent of deaths from CVD now occur in low and middle-income countries. Thus, there is a special and urgent need for data and treatment strategies concerning CVD in low and middle income countries (Alwan *et al.*, 2010).

The role of lipoprotein (a) in the pathogenesis of CHD has been subject to recent debate. Several clinical and

epidemiological studies have shown an association between elevated levels of Lp(a) and the occurrence of acute CHD events. Most convincingly, results from the lipid research clinic demonstrated Lp(a) to be an independent predictor of future nonfatal myocardial infarction and CHD death in hyperlipemic men 35 to 59 years of age (Schaefer *et al.*, 1994).

Lp(a) is made up of apolipoprotein B-100 (the apolipoprotein of LDL cholesterol) disulfide linked to apolipoprotein(a), a large and polymorphous glycoprotein with structural homology to the fibrinolytic proenzyme plasminogen. This structural homology has led to the hypothesis that Lp(a) may represent an important link between atherosclerosis and intra-vascular thrombosis. Indeed, several *in vitro* studies have demonstrated that Lp(a) competes with plasminogen for binding sites on endothelial cell surfaces. Lp(a) may promote atherosclerosis when oxidized Lp(a) particles are engulfed by macrophages, causing their