Comparison of direct versus Friedewald estimation of low density lipoprotein cholesterol in Indian patients: Cost-effectiveness concerns?

Sir,

I have gone through an interesting original article on comparison of calculated and direct methods of estimation for low density lipoprotein-cholesterol (LDL-C) by Kannan *et al.*[1] In this study, laboratory database of 14,620 lipid profiles was analyzed to compare use of Friedewald formula (FF) and direct estimation of LDL-C and found FF is inadequate in correctly estimating the LDL-C at higher triglyceride levels (i.e. >200 mg/dl). However, FF is known to have such limitation, which is highlighted in multiple studies earlier. Recently published study of consecutive 380 lipid profiles from hyperlipidemic patients in India has shown limitations with both the direct and calculated methods for LDL-C estimation.[2]

The incidence of hyperlipidemia is on the rise, and this rise is correlated with change in dietary habits and lifestyle in Indian population.[3] The treatment options for hyperlipidemia are limited. And the treatment is often needed for long-term. The cost for the treatment including the investigations is often borne by the patients. Hence, it is necessary to justify the additional investigations.

Estimation of LDL-C by direct methods is relatively costly, involves labor, requires expensive ultracentrifuges, rotors, and tubes. It is also a time consuming and can be performed only on a few samples a day hence its use in routine clinical laboratories is limited. FF is considered cost-effective method.[4] It is necessary to choose the correct method for LDL-C estimation as it influences the treatment goals. However at the same time, it is imperative to find the cost-effective method. Complete assessment of the cost effectiveness requires considerations of the actual measurement costs and costs of measurement errors leading to inappropriate treatment decisions and its implications. Study by Kannan *et al.* has a good sample size and gives robust data on LDL-C estimation methods affecting the treatment goals. However, it will be valuable if authors also evaluate the cost-effectiveness of these methods. This will guide the clinicians to make the right choice while advising the LDL-C estimation to the patients who already bearing the economic burden of the disease.

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Congenital Hypothyroidism: Recent Indian data

Sir,

We read with great interest the review article by Agarwal *et al.* on congenital hypothyroidism (CH).[1] The author mentions that the prevalence of CH in India is 1 in 2640 based on the study was done by Desai *et al.* in 1998.[2] For the benefit of the readers we would like to add that significant information regarding the prevalence of CH has been accumulated in the last few years from our country and many of them point towards higher incidence of CH in India. The probable reasons for this increased prevalence could be due, as discussed

in the article, to improved testing strategies, increasing numbers of preterm births[1] or the actual incidence of a condition that was not studied in a large scale in the second most populous country in the world. The other studies from India quote a prevalence of 1 in 1985 from Hyderabad[3] and 2.1 in 1000 from Kochi.[4] Both these studies were hospital-based with relatively small sample sizes. In another study recently from UP, the prevalence of CH was reported to be approximately 1:1221.[5] The first multi-centric study screening above 1 lakhs neonates born throughout India was launched by Indian Council of Medical Research (ICMR) National Task Force Team on New Born Screening (NBS) at AIIMS New Delhi (2007–2012) and the preliminary results reveal a much higher incidence of CH all over India at 1 in 1172, particularly in south Indian population (1 in 727). Results have been released by ICMR team on March 15, 2013 presided by Tamil Nadu Government Deputy Dierector of Medical Education.[6] In another review by Sundararaman the result of the pilot study of the above project was quoted to be 1.6 in 1000.[7] The detailed report of the above mentioned ICMR study is likely to be published in the near future. As members of the Chennai centre of the ICMR study on NBS in India, we thought it would be appropriate and useful to share and highlight the initial published findings with our journal readers.

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Yoga: An endocrine therapy

Sir,

The editorial by Jyotsna *et al*., highlighting the various benefits of yoga in people with diabetes, is informative reading. Yoga is Indian system of healthy living, which is now adopted by western scientists also. As mention by Unnikrishnan *et al*.[1] yoga, if encouraged in schools and colleges, may well turn out to be a low cost-effective strategy for prevention and treatment of diabetes.

Importance of exercise in diabetes prevention and treatment cannot be over emphasized. Physical activity has been shown to reduce development of type 2 diabetes[1] and also reduce cardiovascular mortality in patients who already have diabetes.[2] However, exercise adherence is very poor in patients with diabetes[3] even in developed countries. The various factors for nonadherence are associated musculoskeletal problems such as arthritis, lack of motivation, lack of re-enforcement and monitoring by treating physicians and busy schedule of working class of people. In one study, 37.7% patients with diabetes did not spend any time on exercise.[4]

Stress is another important factor of modern life which has an impact on health. With progressively decreasing sleep hours, psychological stress and depression diabetes and metabolic syndrome have become common in Asian population.[5] Today's India has been termed hyperadrenergic and hyperdopaminergic.[6] Hence, the stress should be a focus of attention while treating diabetes.

Yoga is an alternative therapy for diabetes with not only physical but also psychological benefits. It improves blood glucose, lipid profiles and oxidative stress.[7] Yoga's energy expenditure is similar to moderate exercise.[8] Advantages