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ORIGINAL ARTICLE

Frequency of Vitamin D deficiency in Coronary artery disease patients following up in tertiary care cardiac center in Lahore

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ABSTRACT

Aim: To find out frequency of Vit. D deficiency in Coronary artery disease following up in tertiary care cardiac center
Method: It is Purposive Cross-sectional study, Duration study period of two months in which 228 patients attended out clinic and underwent admission at department of cardiology & cardiovascular surgery, Data collection tool (a structured questionnaire) consists of demographic data, Vitamin d3 level, details of medications and co-angulation factors, ECG findings and expected Echocardiogram findings
Result: The subjects were severely deficient in vitamin D and its levels were inversely correlated with most of the components of metabolic syndrome. A Vitamin D deficiency is stirring the Pakistan rural population regardless of their age, gender, and the results of this study's result have showed that this vitamin D deficiency is crucial in Pakistan. However, large scale studies are required to verify our findings.
Keywords: Cardiovascular disease, Vitamin D. deficiency, Coronary artery disease, Malnutrition.

INTRODUCTION

Cardiovascular disease-(CVD) is leading cause of death all over the world and is highly prevalent in South Asian countries where health care facilities are in developing phase. People in this region develop coronary artery disease at a younger age and have severe disease in comparison with other regions and the mortality and morbidity rates are higher due to MI and this trend is expected to rise in the near future. Deficiency of vitamin-D is thought to an independent danger issue for coronary artery disease and is thought to have inverse relationship with the SL of vitamin D (Kienreich K et al 2013)

However, this relationship is variable in different among various races and may not be applicable to all ethnic groups (Robinson-Cohen C et al 2013). The deficiency of vitamin D is common in Pakistan and in a rough estimate 85% of the people suffering from either moderate or severe deficiency of vitamin D (Riaz H et al 2016). But, the data regarding vitamin D deficiency & its association with acute myocardial infarction in Pakistani population is limited except for one small study. Therefore, it is very important to it is to enquire vitamin-D deficiency and coronary artery disease relationship in the Pakistani population.

Recent evidence, has demonstrated that individual with Vitamin-D deficiency are more likely to have cardiovascular disease or are at risk of developing incident cardiovascular disease. Recent data has shown the role of VDBP genotypes as potential risk modifiers of coronary heart disease (CHD). Other studies demonstrated no effect of the VDBP genotype distribution as a potential risk factor for coronary artery disease in Western populations (Michos ED et al 2015), The data among South Asian population is sparse as no studies have been carried out in Pakistan to investigate this relationship. In this study, we want to demonstrate whether there exist a positive relationship among serum vitamin D levels and having coronary artery disease in Pakistani population.

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The objective of the study was too find out the frequency of Vitamin D3 deficiency in Coronary Artery disease patients following up at our department.

Study rationale: We live in population of malnourished people with associated high proportion of vitamin D lack, around has been well recognized surge in pre mature coronary artery disease in our population in the last 20 to 25 years, it is very likely that malnourishment is associated deficiencies in vitamin level, skeletal growth and type II diabetes. This study is carried out to inquire if any such association is possible.

MATERIAL & METHODS

It is Purposive Cross-sectional study, duration study period of two months in which 228 patients attended out clinic and underwent admission at department of cardiology & cardiovascular surgery, after approval of IRB data collection tool (a structured questionnaire) consists of demographic data, Vitamin d3 level, details of medications and co-angulation factors, ECG findings and expected Echocardiogram findings

Data collection: The data was taken from patients' hospital file records as he/she was. Patients' demographic, clinical data and details of medicines (aspirin, clopidogril, heparin), blood tests (Hb, RFT, TFTs, total serum 25(OH)D **level**), ECG findings , Echo findings , Body Mass Index was calculated for each patient. Outcomes i.e., listed on pre-designed pro forma were all recorded carefully to meet the objectives of chosen study. The length of the stay in ICU and stay in hospital for each patient was recorded. Any intervention done (PCI/CABG) All the patients were continuously monitored and followed up daily by researcher himself to watch for any untoward/worse outcome that may arise during his / her stay in hospital until the patient fully recovered and discharged or expired.

RESULTS

Baseline Characteristics: In a limited time period for study purpose, data was collected on small sample size which comprised of 228 participants. The statistical findings from the re-

ported study will be discussed in relation to current literature that focuses on Vitamin D deficiency and risk for Cardiovascular disease in Lahore. All the 228 Patients were all admitted in department of Cardiology and Cardiovascular surgery and followed after during admission at Shalamar Hospital, Lahore. The findings from this study could become a pilot study within a bigger study in cardiac surgery and cardiology practice.

Graphical distribution of research study: During study period of two months 228 patients attended out clinic and underwent admission at department of cardiology & cardiovascular surgery, a high prevalence of vitamin D deficiency was recorded with 96(42.1%) of citizens sampled, Out of these 96 patient 27(35.5%) had severe Vit. D deficiency. The mortality of patient who were admitted was found to be 7.9%, as 18 patient out 228 patients died (Table 1).

Regarding dietary habits most of the participants consumed food poor in vitamin D content 218(89.3%) whereas 26(10.7%) subjects had adequate amount of food rich in vitamin D content. Out of 228, 183(80%) patients belong to low social economical back ground and 45(20%) patients comes for normal social economical back ground . 45(20%). Furthermore ,18.4% patient develop deranged renal profile (42 out of 228) The intervention for PCI intervention was found to be 11.84% (27 out of 228) and CABG was performed in 13 patient and 210(92%) were discharged according to the schedule.

Out of 228 patients, 105 (46.1%) patients were diabetic, 106(71.1%) were hypertensive, 117(51.3%) were having hyperlipidemia, 15(6.6%) patients were having poor LV function showed on echocardiogram and 39(17%) obesity. 35(46%) patients were symptomatic receiving medical therapy and 45 (20%) were asymptomatic. Source of dietary factors found during study reveal following weekly dietary assessment data, utilization of vegetables in 90 (40%), Cereal 36(16%), fast food intake 36(16%), meat 9(4%), milk & dairy products in 25(6%) patients.

Table 1- Basic Characteristics of study subjects (n-228)

Vit. D Level	Frequency
Mild to moderate insufficiency	96(42.1%)
Severe insufficiency	26(31.5%)
Normal	132(57.9%)

DISCUSSION

Vitamin-D insufficiency is common problem in the Pakistan and throughout the world; multiple research suggested there is huge correlation among vitamin D insufficiency and risk of developing coronary artery disease, early diabetes-mellitus and metabolic syndrome.

This study has demonstrated that vitamin-D deficiency is one of aggravating factor for high rate of hypertension, Coronary artery disease and sudden cardiac death, the subjects in our study were severely deficient in vitamin D and its levels were inversely correlated with most of the components of metabolic syndrome.

Dietary factors were major determinant of the study regarding high prevalence as most of our participant were consuming low amount of vitamin D rich food , We emphasize on Low social comical factors play a vital role in our society , which lead to non-affordable for dairy products , rich protein diet , Low social economic factors also contribute to unavailability of better education , that result into no awareness of Vitamin D supplements , importance of Exposure of sunlight & duration having misconception regarding harmful effects of sunlight and unawareness regarding the source of Vitamin . Also Low income group also directly related to poor housing with joint family system, small houses with lesser amount of sunlight

CONCLUSIONS

We strongly suggest screening of population who are at risk of disease progression (coronary artery disease , diabetes , hypertensive, Osteoporosis) and treat with vitamin-D to a 25(OH)D level of 30ng/mL At this present time there is there are currently no universal guide-lines for Vitamin-D screening, and its insufficiency management.

Conflict of interest: Nil

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