The effect of Vitamin D Deficiency in Osteoporosis and Chronic low back pain among Saudi Arabian middle aged Women in Riyadh City, MAY 2014

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Abstract

Vitamin D is essential for life as it is the important regulator of calcium metabolism. Vitamin D deficiency is prevalent around the world. Studies show that a prevalence of low Vitamin D presenting with backache. To assess the effects and Prevalence of vitamin D deficiency in osteoporosis and chronic low back pain among women. A cross-sectional study was conducted among (n=99) subjects in Prince Salman Hospital in Riyadh Saudi Arabia, all of them were middle age Saudi women of age 30-59 years who were chosen randomly. A Self-reporting questionnaire were used for data collection. Data analysis were done using SPSS program. We found a high percentage 68.7% of middle age 30-40 years have vitamin D deficiency and osteoporosis in Saudi female in Riyadh and 25% of them due to many factors. 25 % of our sample they had VitD deficiency with osteoporosis that may cause by not enough daily sun exposure, and diet lack of VitD sources. These data suggest a need to increase vitamin D intake either through improved fortification and/or supplementation.

INTRODUCTION

Vitamin D is essential for life as it is the important regulator of calcium metabolism. Vitamin D deficiency is prevalent around the world. Studies have shown that Vitamin D levels in Saudi citizens were lower than the rest of the world. Studies show that a prevalence of low Vitamin D levels in 83% of patients presenting with backache. A Recent association of Vitamin D deficiency and osteoporosis has been noticed. And with these conditions they are contribute to a significant burden on the patient and his family but on society as a whole where the patient is cut off from his work, leading to a lack of financial benefits and social and psychological problems resulting from frequent use of medication review and the continuity of medical clinics.

OBJECTIVES

Prevalence of chronic low back pain and osteoporosis among Saudi Arabian middle aged women.

To know if vitamin D deficiency is a major cause of osteoporosis and chronic low back pain among Saudi Arabian women?

Why are so many women in Saudi Arabia suffering from a lack of vitamin D in a country which is abundantly full of sunshine?

The impact of lifestyle changes.

The influence of non-complaint vitamin D deficient women.

MANAGEMENT AND PREVENTION

We suspect that there will be high percentage of drug users without prescription, and the effect of difference in socioeconomic states among the people will have a great role leading to use drugs without prescription. Related to the cause of taking drug w/o prescription either it is a money factor or time factor we suspect that we will find that the money cause is the main factor, in types of drugs taken we suspect to find the most type used
is pain relief. This is our hypothesis and our suspect before our study.

LITERATURE REVIEWS

(1) Prevalence Of Vitamin D Deficiency Among Saudi Women

According to a recent article in the Saudi Gazette, a study conducted by a team of specialists from King Saud University revealed that 80 per cent of Saudi females suffer from Vitamin D deficiency. Vitamin D deficiency is not something which should be ignored. It can cause kidney and liver diseases, loss of hair in women, bone pain and muscle weakness, palpitations, sleeplessness, weak memory and general weakness.

The main cause of vitamin D deficiency is a lack of natural sunlight. One can take Vitamin D supplements but natural sunlight is the best and healthiest source of vitamin D.

So why are so many women in Saudi Arabia suffering from a lack of vitamin D in a country which is abundantly full of sunshine? The conservative Kingdom requires that when women go out from their residence they must cover at a minimum from shoulder to ankles in a black abaya. In addition to the abaya, the majority of Saudi women choose to wear a hijab which covers their hair and a niqab which covers all but their eyes. The social lives of Saudi women generally start after dark which further limits their exposure to sunlight.

It is typical for most Saudi homes to have a privacy wall around the entire home. Inside of the walls there is generally at least one courtyard which is open to the sky. However, Saudi women either start their day by late afternoon, have commitments which keep them inside or do not have an interest or desire to be outside.

The Saudi culture does not place the same emphasis on spending time outdoors as do other cultures and especially so for the women. It is hoped that with the rising generation of Saudi youth there is a better understanding on the importance for women to get exposure to sunlight.

(2) Prevalence of Vitamin D deficiency and chronic low back pain in Saudi Arabia.

RESULTS: Findings showed that 83% of the study patients (n = 299) had an abnormally low level of vitamin D before treatment with vitamin D supplements. After treatment, clinical improvement in symptoms was seen in all the groups that had a low level of vitamin D, and in 95% of all the patients (n = 341).

(3) Prevalence of Vitamin D deficiency and osteoporosis in Saudi Arabia.

The population under study is classified into 3 categories according to vit D nutritional status: deficient (5 ng/ml), low (5-10 ng/ml) and adequate (10 ng/ml).

The frequency of low 25-OHD concentration (5-10 ng/ml) is high (22% in total children and 20% in total adults) in the Saudi population, while the frequency of vit D deficiency (25-OHD level 5 ng/ml) is 3.4% in total children and 5.5% in total adults. This is true whether the population is urban or rural.

26% of female children of female adults have low vit D status in comparison with 19% and 17% for male children and male adults, respectively.

Severe hypovitaminosis D

(25OHD less than 20 nmol/l ) = 52%

Osteoporosis and osteopenia in subjects more than
31=16-41 %, 0-7%

Optimal vitamin D status for the prevention and treatment of osteoporosis Holick MF Drugs Aging 2007

Vitamin D deficiency is defined as serum 25 OH D level <50 nmol/l or 20 ng/ml.

MATERIAL & METHOD

A cross-sectional study was conducted among (n=99) subjects in Prince Salman Hospital in Riyadh Saudi Arabia, all of them were middle age Saudi women of age 30-59 years who were chosen randomly. A Self-reporting questionnaire were used for data collection. Data analysis were done using SPSS program.

RESULTS

Vitamin D deficiency and osteoporosis are more common in our local population than in other countries. In our study of ninety nine middle age Saudi women we found a high percentage 68.7% of middle age 30-40 years have vitamin D deficiency and osteoporosis in Saudi female in Riyadh (Table 1). There is a percentage of female patients that suffer from vitamin D deficiency and they are at high risk for developing osteoporosis and they are 19 % (Graph A).
In our study we found variations in the reasons of vitamin D deficiency those who had osteoporosis appear that 25% (Table 4, Graph A) of them due to many factors including; the bad life style of lack drinking milk 79.8% (Table 2), eating vegetables and fish. As well as the lack to expose to sunlight in adequate amount 86.9% (Table 3, Graph B) and some genetic factor may have such role in this phenomenon.

**DISCUSSION**

We have found that 25% of Saudi Arabian middle age women who have vitamin D deficiency having osteoporosis. Moreover, 39% of women having vitamin D deficiency and no osteoporosis. We have found that vitamin D deficiency is one of the causes to contribute to osteoporosis and chronic low back pain among Saudi Arabian women. There are multifactor that play role of developing these condition such as: genetic influence among Saudi population it's thought that it may contribute to these condition, because we have seen some women that lived in countryside which a fully of sun light and they have the same problem as these women who didn't exposed to sunlight, so exposure or not to sunlight is not the major role of developing these condition. Moreover, the lifestyle and it's influence on nutriments such as dairy products and fruit. Any disturbance in these nutriments could lead to vitamin D deficiency.

At the end of our discussion we can say that there are many agents that play a such role to cause vitamin D deficiency either no exposure to sunlight, lack of some nutriments or genetic effect.

**CONCLUSION**

Our finding suggest that Saudi women in this study are having vitamin D deficiency and osteoporosis more than other countries, that probably due to in appropriate sun exposure, diet (daily milk ingestion).

We also find that almost half of Saudi women in this study are having vitamin D deficiency without osteoporosis that might indicate that the deficiency is not severe.

We observe that low vitamin D levels are more prevalent in our sample of middle age Saudi women. These data suggest a need to increase vitamin D intake either through improved fortification and/or supplementation.

**RECOMMENDATION**

it's well known that Taking VitD supplement help to improve and relief the symptoms of back pain and osteoporosis, so we advice all woman to expose to sun light daily. Consuming diet reach in VitD like milk product, fish, eggs... etc and take a medical supplement of VitD. Make sure to Do a routine VitD serum test to know if there is deficiency or not. And the most important recommendation is not take any supplement of VitD without consult a doctor. The doctor have to rule out any illness that cause VitD level to be low Before describing A VitD supplement.

**LIMITATION**

We have went to KSMC hospital but they don’t help us in doing our study by putting many obstacles against us like they order the full Research project and there deal with us was not very well and we decide to shift to prince salman hospital. Better to say we face some difficulty for data access in some of biggest medical city in Riyadh because of their policy and rules.

**ACKNOWLEDGMENT**

Special thanks to head nurse miss Amal alkhaldy to her professional and friendly dealing with us and help us in distributing Questionnaire.

**REFERENCES**

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MONA A FOUDA NEEL, MBBS, MRCP(UK), FRCPE. “STUDY OF VITAMIN D STATUS AND FACTORS LEADING TO ITS DEFICIENCY IN SAUDI ARABIA ASSOCIATE PROFESSOR OF MEDICINE”.

High prevalence of vitamin D deficiency in the sunny Eastern region of Saudi Arabia http://applications.emro.who.int/emhj/V17/04/17_4_2011_0317_0322.pdf?ua=1
Table 1

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APPENDIX

(A)

(B)

(C)
Key points:

T1: showing different age for those who have VD deficiency and osteoporosis
T2: showing lack of Dairy Products (milk)
T3: showing lack of expose to sunlight in adequate amount
T4: comparison between who have VD deficiency alone or with/out osteoporosis
GA: comparison between who have VD deficiency alone or with/out osteoporosis
GB: showing the percentage of people who exposed to sunlight
GC: Data analysis were done using SPSS program

T: table, G: graph

Average (X) Mean

Table 1
age x= 45
frequency x= 33

Table 2, 3
x= 49.5

Table 4
Vitamin D deficiency Only
x= 22

Osteoporosis Only
x= 20.5