RESEARCH
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STUDY ON VITAMIN D AND ALCOHOL RELATED PSYCHIATRIC DISORDERS.

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Abstract

Background

Deficiencies in vitamin D, which is linked to increased bone mineral density, are a worldwide epidemic. Psychiatrists have shown that low vitamin D levels are linked to psychotic symptoms, depression, schizophrenia, and, more recently, alcohol-related mental disorders. Among the most common mental illnesses globally, alcohol-related disorders rank high. That is why we decided to check for a link between low vitamin D blood levels and mental health issues after drinking. The reason for this examination was to look at vitamin D levels in two gatherings: one consisting of fifty patients with alcohol-related mental disorders and another consisting of fifty healthy controls.

Materials and methods: Taking place over the course of two years, from 2012 to 2014, this case control research was carried out at a tertiary care teaching hospital in Kochi, Kerala. Fifty individuals were evaluated for vitamin D levels; fifty were considered controls and fifty were classified with alcohol-related mental disorders as indicated by the Worldwide Arrangement of Illnesses, tenth rendition, Analytic Standards for Exploration. From the venous blood tests, the vitamin D levels were surveyed using Abbot Architect.

Results: itamin D insufficiency was found in 60% of the cases (30 people) and 26% of the controls (13 people). A p-value less than 0.001 indicates a statistically significant difference.

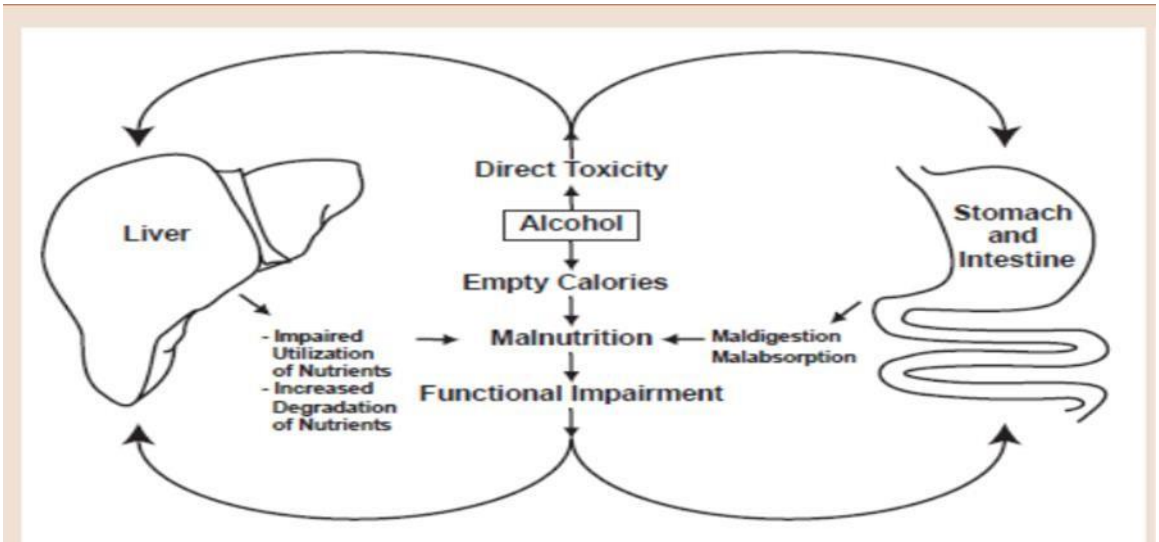
Conclusion: Compared to the control group, the patients in this research had substantially decreased blood vitamin D levels. A lack of sunlight, an unhealthy food, malabsorption, ethanol-induced liver damage, and an unhealthy lifestyle are all factors that contribute to low 25(OH)D levels in those who drink too much. Please validate the relationship between vitamin D deficiency and alcohol-related mental problems by conducting further case-control studies using bigger random samples.

Keywords: Alcohol; Alcohol use disorder; Vitamin D

Introduction

India traverses the entire tropical side of the equator, from 8.4º N to 37.6° N. The widespread assumption that Vitamin D (Vit D) insufficiency is rare in India stems from the fact that the vast majority of its inhabitants reside in regions that get abundant sunshine throughout the year.1 The published statistics, however, show that vitamin D insufficiency is widespread throughout India and affects people of all ages and both sexes.2-4. Somewhere about one billion individuals on our planet aren't getting enough vitamin D.5 According to previous research, a large percentage of the Indian population suffers from vitamin D insufficiency and has inadequate calcium consumption (ranging from 50 to 90%).2 Not only can a poor diet contribute to vitamin D deficiency, but so do alcoholics, inflammatory rheumatological illnesses, skin problems, kidney disease, and liver disease.

Common alcohol related psychiatric problems are alcohol dependence syndrome, alcohol induced mood disorders, alcohol induced psychosis. People who drink alcohol regularly often have low vitamin D levels, even if their livers aren't severely damaged. Despite these findings, very little is had some significant awareness of the vitamin D status of the individuals who experience the ill effects of both liquor use confusion and major depressive disorder (AUD/MD) simultaneously.



Reduced 25(OH)D levels in alcoholics are thought to be caused by a lack of sun exposure, an unhealthy diet, ethanol-actuated liver harm, and malabsorption.6 Vitamin D inadequacy was viewed as in 64 percent of alcohol use disorder patients treated by Sudan Prasad Neupane (2013) 72.Similar to other research on alcohol-abusing groups, our findings show that there is a high pervasiveness of vitamin D inadequacy (Lee, 20128; Naude et al., 2012 9).Vitamin D inadequacy is normal in alcohol treatment samples, and research by Sudan Prasad Neupane (2013) 7 demonstrates a correlation between this condition and the severity of alcohol use disorders. Possible reasons for low vitamin D status incorporate restricted sun openness, malabsorption, diminished adipose tissue, and inefficient hepatic hydroxylation 10, according to one research. Despite this, many people who regularly use alcohol suffer from inadequate intakes of certain micronutrients.

Materials and Methods: Patients using the inpatient and outpatient services of a tertiary care teaching hospital's psychiatric department in Kochi, Kerala, were the subjects of this case control research. Following the criteria and agreement of the Institutional Moral Panel and with the members' educated composed assent, the exploration was completed north of a two-year time span from October 2012 to October 2014. An example size of 40 cases and 40 controls was resolved utilizing information from the writing on vitamin D and significant burdensome issue. The confidence level was set at 95% and the power at 80%. Half of the participants were cases and half were controls. The patients ranged in age from fifteen to eighty years old, and they were all diagnosed with an alcohol-related mental disease according to the International Classification of Diseases, Tenth Revision, Diagnostic Criteria for Research (ICD- 10-DCR). The research did not include patients who were on vitamin D medication, had kidney illness, liver disease, or thyroid problems. Fifty healthy people who were similarly aged were used as a control group.

Procedure Methodology
The criteria included in this investigation were 25(OH) D levels, which were evaluated using Abbot Architect 1.

Sample Collection
A strict protocol for aseptic collection of venous blood samples was followed. The participants in this research were patients whose blood samples were requested for vitamin D assessment within the specified time period by the biochemistry laboratory and who met the criteria described above. For the duration of the vitamin D test, the blood samples were kept at -20oC.

Test Method

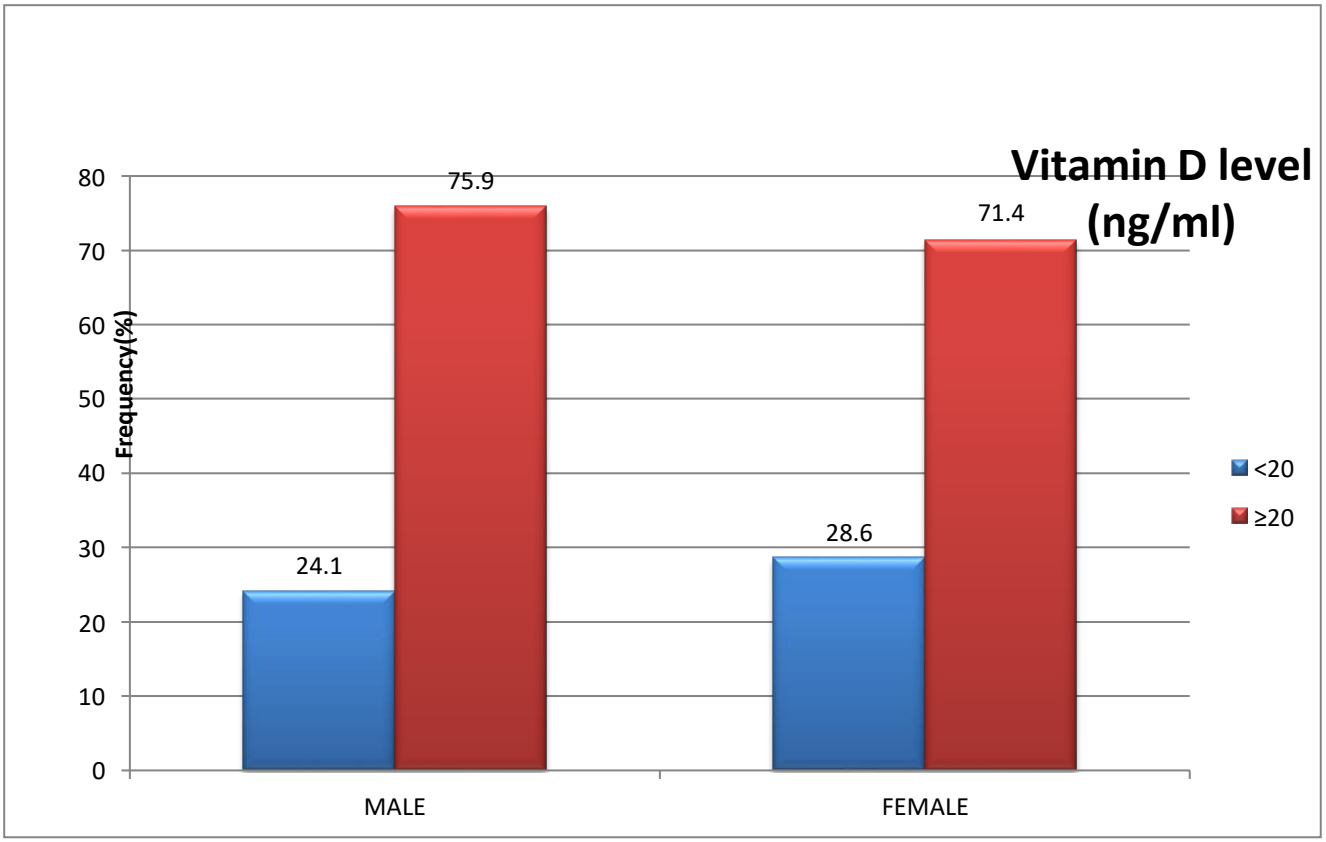
Chemiluminescence Immunoassay
Principle In order to quantify vitamin D in human blood and plasma, the engineer 25-Goodness nutrient D test use CMIA Technology, which is a chemiluminescence immunoassay. This deferred one-step immunoassay incorporates an example pre-treatment. The measure diluent, paramagnetic antivitamin D-covered microparticles, and pre-treatment reagent are blended in with the example.Once the microparticles coated with antivitamin D have been incubated, a conjugate complex of biotin and biotin acridinium is introduced to the reaction mixture. This combination attaches to the unoccupied restricting locales of the microparticles. Washing is trailed by the expansion of pretrigger and trigger answers for the response combination.
Relative light units are used to quantify the chemiluminescent response that follows. The ARCHITECT I system optics' relative light unit detection is indirectly related to the sample's vitamin D content.

Reference Range[11,12]
Vitamin D Deficiency = <20 ng/mNormal = >30 ng/ml
Data Analysis by Statistic Data was analysed using IBM SPSS Statistics 20 Windows, which is developed by SPSS Inc. and located in Chicago, USA. Data are presented as percentages or frequencies for all categorical categories. To determine whether two category variables were associated, chi-square analysis was used. The risk's odds ratio was calculated. The age method for the two gatherings were looked at utilizing a free two-example t-test. At the point when the p-esteem was lower than 0.05, factual importance was established.

Results

DEFICIENCY OF VITAMIN D AND GENDER IN CONTROL

	GROUP	NO	VITAMIN D				P VAUE
			<20		≥20		
			NO	%	NO	%	
GENDER	M	29	7	24.1%	22	75.9%	0.979
	F	21	6	28.6%	15	71.4%	

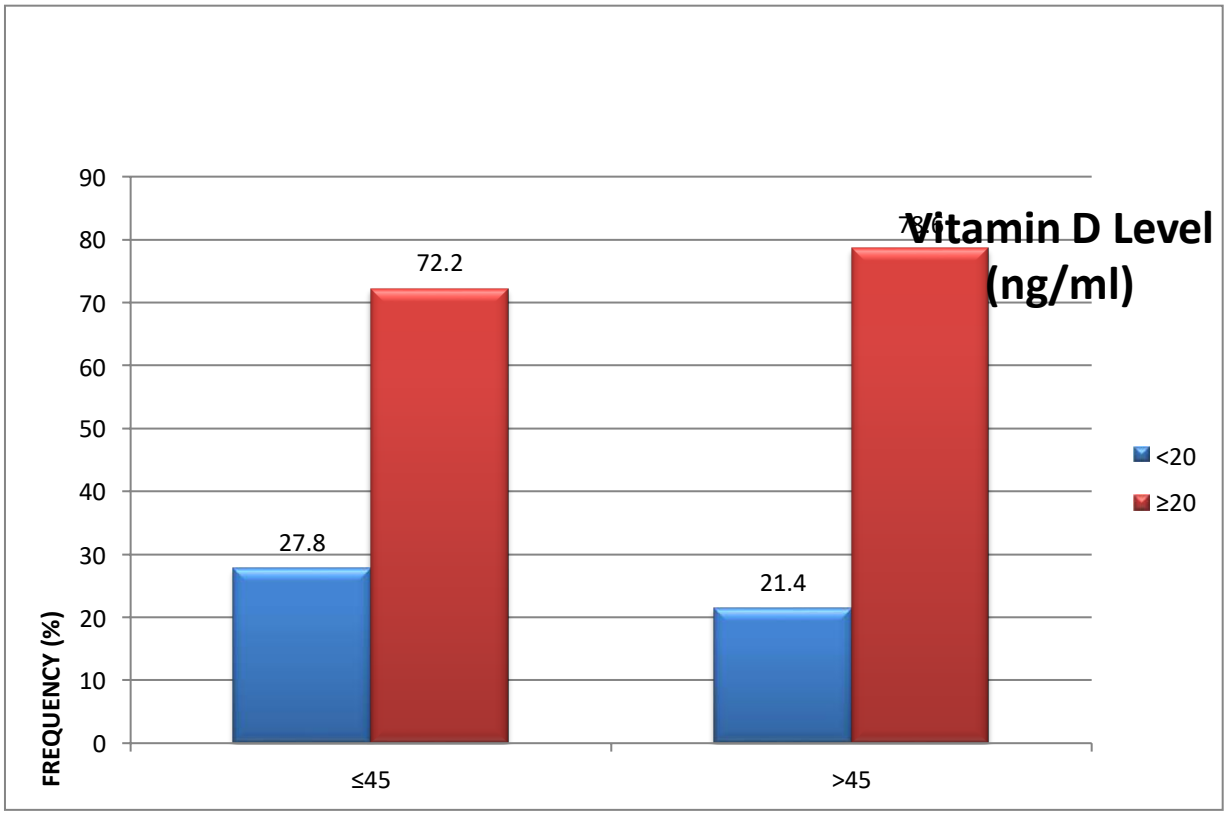


Gender:

As per the study, among the controls with Vitamin D deficiency24.1%(7)were Males and 28.6%(6)Females. The discrepancy did not reach statistical significance.

ASSOCIATION BETWEEN VITAMIN D DEFICIENCY & AGE AMONG CONTROL

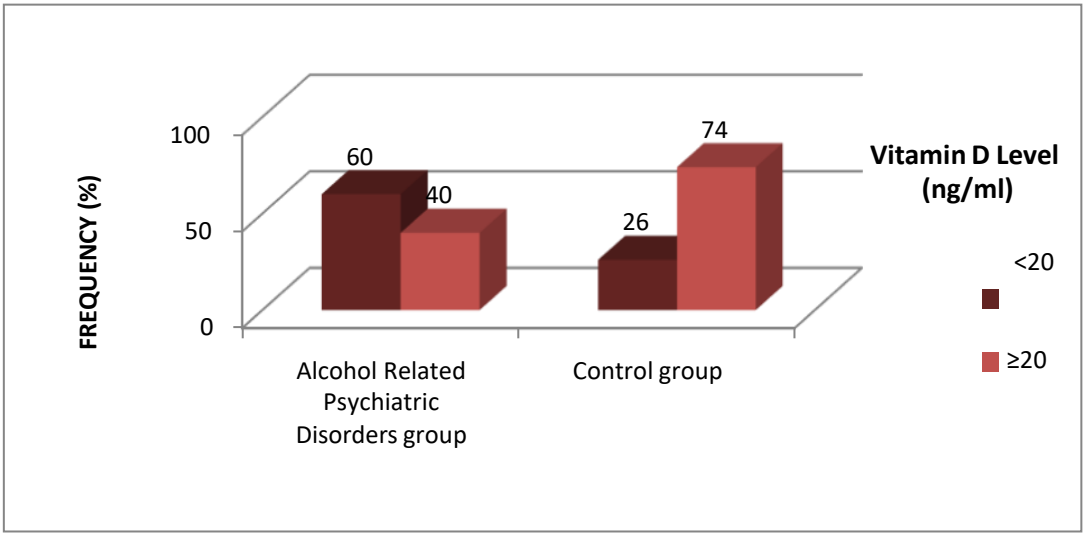
	GROUP	NO	VITAMIN D				P VAUE
			<20		≥20		
			NO	%	NO	%	
AGE	≤45	36	10	27.8%	26	72.2%	0.734
	>45	14	3	21.4%	11	78.6%	



Age Group
The age range of the controls with vitamin D insufficiency was 25–45 for 27.8% (10 individuals) and 21.4% (3 individuals) for another group. But the difference was not statistically significant.

Vitamin D deficiency and alcohol-related psychotic disorders–a correlation.

GROUP	NO	VIT D DEFI		OR	P VALUE
		<20			
		NO	%		
CONTROLS	50	13	26%		<0.001
ALCOHOL RELATED	50	30	60%	4.26	



Alcohol related psychiatric disorders and Vitamin D deficiency.
Vitamin D deficiency was found in 60% (30 patients) in the alcohol-related mental disorders group, compared to 26% (13 patients) in the benchmark group. There was a genuinely tremendous contrast. It also demonstrates that compared to controls, people with alcohol-related mental illnesses are 4.26 times bound to foster vitamin D insufficiency.

Discussion

Common alcohol related psychiatric problems are alcohol dependence syndrome,alcohol induced mood disorders ,alcohol induced psychosis. Reduced 25(OH)D levels in alcoholics are thought to be caused by a lack of sun exposure, an unhealthy diet, ethanol-induced liver damage, and malabsorption.[6] Indeed, even without any significant liver impedance, vitamin D levels tend to be lower in persistent alcohol drinkers. [13] In spite of these anecdotal findings, very little is known about the vitamin D status of individuals who experience the ill effects of both liquor use turmoil and major depressive disorder (AUD/MD) simultaneously. Vitamin D insufficiency was found in as much as 64 percent of alcohol use disorder patients treated by Sudan Prasad Neupane in 2013.Our findings on vitamin D insufficiency rates are consistent with those of previous research that have looked at people who abuse alcohol. (Lee,2012[8]; Naude et al., 2012 [9].

Sudan Prasad Neupane 2013 [7] provides more evidence that vitamin D insufficiency is prevalent in alcohol treatment samples and that there is a correlation between the seriousness of liquor use issues and vitamin D deficiency. This research found that factors such as less sun exposure, malabsorption, decreased fat tissue, and impaired hepatic hydroxylation [10] might be the reasons why your vitamin D levels are too low.Despite this, many people who drink alcohol do not get enough of certain micronutrients.[14] Patients with alcohol use disorder are more likely to seek medical attention when they also suffer from co-occurring mood problems.15 This suggests that patients admitted to hospitals for alcohol use disorder may not have more serious alcohol misuse issues, but that they may need treatment for extra depressive symptoms and illicit drug usage. Sudan Prasad Neupane2013 [7] reported before that major depressive disorder was present in more than a third of the sample of those receiving alcohol therapy. Without comorbidities that further lower vitamin D levels, those with liquor use problems sufficiently extreme to require systematization are probably going to have the most un-ideal vitamin D profile.

In our case control study we included the subjects having alcohol related psychiatric problems (alcohol dependene syndrome,alcohol induced mood disorders ,alcohol induced psychosis)as cases.While only 26% of the control group suffered from vitamin D deficiency, 60% of the patients with alcohol-related mental problems did.for the data in table 2 c A statistically significant difference was observed (p Value<0.001). Additionally, the results demonstrate that the risk of developing vitamin D insufficiency is 4.26 times higher in individuals with alcohol-related mental illnesses compared to controls (0.26 odds ratio). The findings are consistent with those of earlier research.

We need further studies in both the general public and clinical samples to determine if vitamin D interacts negatively with alcohol-use disorder and other co-occurring mental disorders.

Summary

- The study was conducted as a prospective case control study among 50known alcohol related psychiatric patients attending the outpatient wings of psychiatry department, AIMS. 50Agematched healthy subjects are taken as controls. The primary objectives were to concentrate on the predominance of lack of vitamin D in, Alcohol related psychiatric disorders. Secondary objective was to generate a hypothesis related to Lack of vitamin D liquor related mental problems and controlsVitamin D levels were measured by Chemiluminescence immunoassay using ABBOT ARCHITECT PLUS
- Vitamin D insufficiency was found in 28.6% of females and 24.1% of men in the study's controls. Statistical analysis failed to reveal a meaningful difference.The age range of the controls with vitamin D insufficiency was 27.8% (ten) for those aged 45 and under, and 21.4% (three) for those aged 45 and above. Nevertheless, there was no statistically significant change.
- Vitamin D deficiency was found in 60% (30 patients) in the alcohol-related mental disorders group, compared to 26% (13 patients) in the benchmark group. It was a measurably tremendous distinction. Vitamin D insufficiency is 4.26 times more likely to occur in people with alcohol-related mental problems compared to controls.Thus, vitamin D insufficiency is a distinct risk factor for mental health issues associated with alcohol use.

Conclusion

- Vitamin D insufficiency is prevalent yet sometimes overlooked; nonetheless, it may play a significant role in mental health issues; hence, it is imperative that this pressing matter be addressed.
- Possibly this might provide a solution to some lingering mysteries in the field of psychiatry about the origins of significant mental illnesses.
- The management of several treatment-resistant mental diseases may be aided by being knowledgeable about vitamin D insufficiency and various neuropsychiatric disorders.
- Vitamin D insufficiency or alcoholism may be the underlying cause of alcohol-related mental illnesses; nevertheless, further research is required to draw any firm conclusions.
- One possible approach is to perform case-control studies in this particular group to investigate any potential links to serious mental diseases.
- Vitamin D insufficiency and mental diseases may be causally related, but only after a randomised placebo controlled experiment.

  “Prevention is better than cure,” the old adage goes. For the readily avoidable vitamin D shortage, this is the case.

  Therefore, in order to prevent vitamin D insufficiency in the Indian population, it is recommended that they stick to the current dietary calcium guidelines of 1 to 1.5 gm and 2000 IU of vitamin D per day.

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