DIETARY MANAGEMENT OF INSOMNIA

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ABSTRACT:

Insomnia can occur independently or as a result of another problem. Conditions that can result in insomnia include psychological stress, chronic pain, heart failure, hyperthyroidism, heartburn, restless leg syndrome, menopause, certain medications, and drugs such as caffeine, nicotine, and alcohol. Other risk factors include working night shifts and sleep apnea. Diagnosis is based on sleep habits and an examination to look for underlying causes. A sleep study may be done to look for underlying sleep disorders. Screening may be done with two questions: " do you experience difficulty sleeping?" and "do you have difficulty falling or staying asleep ".The present research work is focused on Dietery Management Of Insomnia.

INTRODUCTION:

Insomnia is a sleep disorder in which you have trouble falling and/or staying asleep.

The condition can be short-term (acute) or can last a long time (chronic). It may also come and go.

Acute insomnia lasts from 1 night to a few weeks. Insomnia is chronic when it happens at least 3 nights a week for 3 months or more.

Sleep is an essential biological function, which is crucial for neural development, learning and memory, emotional regulation, cardiovascular and metabolic function, as well as cellular toxin removal.1,2 Quality sleep is necessary for good health and overall quality of life. Studies have shown that sleep deprivation and circadian clock disruption may lead to altered immune function as well as an increased risk for cardiovascular disease and metabolic disorders such as weight gain, insulin resistance and diabetes.1-3 An increase in the prevalence of insomnia and other sleep disorders, which, in practice, are often underdiagnosed and undertreated, is a global concern.

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HISTORY OF INSOMNIA :

Insomnia, also known as **sleeplessness**, is a sleep disorder in which people have trouble sleeping. They may have difficulty falling asleep, or staying asleep as long as desired. Insomnia is typically followed by daytime sleepiness, low energy, irritability, and a depressed mood. It may result in an increased risk of motor vehicle collisions, as well as problems focusing and learning. Insomnia can be short term, lasting for days or weeks, or long term, lasting more than a month.

Insomnia can occur independently or as a result of another problem. Conditions that can result in insomnia include psychological stress, chronic pain, heart failure, hyperthyroidism, heartburn, restless leg syndrome, menopause, certain medications, and drugs such as caffeine, nicotine, and alcohol. Other risk factors include working night shifts and sleep apnea. Diagnosis is based on sleep habits and an examination to look for underlying causes. A sleep study may be done to look for underlying sleep disorders. Screening may be done with two questions: "do you experience difficulty sleeping?" and "do you have difficulty falling or staying asleep?"

Sleep hygiene and lifestyle changes are typically the first treatment for insomnia. Sleep hygiene includes a consistent bedtime, exposure to sunlight, a quiet and dark room, and regular exercise.

LITERATURE SURVEY:

Insomnia is recognized as the most prevalent sleep disorder and considered a major public health problem (Léger and Bayon 2010; Morin and Benca 2012).According to the Third International Classification of Sleep Disorders (ICSD-3, AASM 2014)criteria for an Insomnia disorder include a difficulty initiating sleep, difficulty maintaining sleep or waking up earlier than desired with daytime impairment despite adequate opportunity and circumstances to sleep. A similar definition of Insomnia is proposed by the Fifth Edition of the Manual of Mental Disorders (DSM-5, APA 2013) which includes a persistent complaint of dissatisfaction with sleep quantity or quality associated with one or more

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Insomnia symptoms (difficulties initiating sleep, difficulties maintaining sleep or waking up too early with inability to go back to sleep) and associated daytime impairment although there are appropriate conditions to sleep. When the sleep disturbance and associated daytime impairment occur at least three times per week and for at least three months, chronic Insomnia disorder (AASM 2014) orpersistent Insomnia (APA 2013) can be diagnosed, if less than three months short-term Insomnia disorder (AASM 2014) or episodic Insomnia (APA 2013) can be determined. In the present paper, an update of the current research on Insomnia is performed. A literature review was conducted focusing on recent published studies with the term "Insomnia" in the abstract using the following databases: PubMed, PsyArticles, and Psychology and Behavioral Sciences Collection. Searches were conducted in January and February of 2016.The first search was conducted in PubMed with the following filters: Insomnia written in the title of the manuscript, English papers, studies with humans, adults with 19 years old or more; papers published in the last 5 years. A total of 756 items were found. The Database of Psychology and Behavioral Sciences Collection was used to search for papers published with the term "Insomnia" between 2010 and 2016. A total of 149 results were found. PsycArticles database was also used to search for papers with the following criteria: Insomnia, published year 2010–2016 and ages of young adulthood (18–29 years), thirties (30–39 years) and 40–64 years. In total, 20 items were gathered. After removing duplicates, a total of 878 records were screened for eligibility. Studies were excluded when described a randomized controlled trial, evaluated the efficacy of Insomnia treatments (Cognitive behavioral therapy or pharmacological interventions, for example), were based in clinical populations/samples other than Insomnia, focused on samples with young or older subjects (less than 18 years and/or above 65 years old) or samples within specific life periods (e.g. pregnancy or postpartum) and psychometric properties of sleep scales were analyzed. A total of 131 full-text articles were eligible for consideration.

PROPOSED APPROACH:

The present research work is focused on Dietery Management Of Insomnia & these are focused with the following objectives

OBJECTIVES:

1.) To introduce sleeping induced foods.

2.) To assess the role of balanced diet on sleeping.

3.) Influence of disturbed sleep on meal plan.

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4.) Foods that to be avoided before going to bed.

5.) To know how the Ketogenic Diet may effect the quality of sleep.

RESULTS & DISCUSSIONS:

Insomnia is the most common of all sleep disorders. The estimated incidents and prevalence of Insomnia in India are 93 percent of Indians are sleep deprived, getting less than 8 hthes per night. 58 per cent believe their work suffers due to lack of adequate sleep. 11 percent take leave from work because of lack of sleep. 11 per cent have fallen asleep at work due to a poor night's sleep and 38 percent witnessed a colleague falling asleep at work. Lack of sleep also affects family relationships according to 19 percent. 87 percent of Indians say lack of sleep affects health. 72 percent of Indians are waking up 1 to 3 times per night. 15 percent wake up over stress at work. 33 percent Indians snore. Up to 14 percent snore as loud as or louder than talking. Only 2 percent of Indians discuss their lack of sleep with a physician.

Indian women (6.5%) outnumber men (4.3%), when it comes to disturbed sleep. And, majority of them suffer from psychiatric conditions like depression and anxiety. Around 4% Indian men who reported severe/extreme nocturnal sleep problems suffered from severe depression, while 3% reported severe anxiety. Similar was the count with women (3.79% reporting severe depression and 2.8% suffering from severe anxiety.) Researchers from the Warwick Medical School looked at the sleep quality of 24,434 women and 19,501 men-aged 50 years and above-in eight rural global locations like Ghana, Tanzania, South Africa, India, Bangladesh, Vietnam and Indonesia and Kenya. Researchers found 16.6% of the population suffered from insomnia and other severe sleep disturbances in the countries surveyed, and about 20% found in the general adult population in the West. The findings suggest that sleeplessness epidemic affects an estimated 150 million in developing world.

The results obtained and were discussed under the following sections :

• First section deals with general nutritional status of the patient.

• Second section deals with food & nutritional intake of the subjects

• Third section consists impact on nutritional counselling on effect on sleep and activity data.

IMPACT ON NUTRITIONAL COUNSELLING ON EFFECT OF SLEEP & ACTIVITY DATA

Dietary treatments. In this design, participants served as their own control and were randomly rotated through each of three dietary treatments: a high-protein, diet (56% protein, 22% carbohydrate, and 22% fat), a high-carbohydrate diet (56% carbohydrate, 22% protein, and 22% fat), a high-fat diet (56% fat, 22% carbohydrate, and 22% protein), and a control diet (50% carbohydrate, 35% fat, and 15% protein).

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The macronutrient percentage for the control diet was based on percentages of macronutrients commonly used in other nutrition intervention studies (Blumenthal et al., 2010; McDowell et al., 1994). The dietary percentage protocols resulted in two nutrients being controlled for dietary treatment comparisons for all of the diets. (For example, in the high carbohydrate diet, fat remained constant at 22% for both the high-protein and high-carbohydrate diet comparisons. Similarly, the carbohydrate percentages also remained constant at 22% for the high-fat and high-protein diets.) The fthe separate diet conditions were selected to test macronutrients that may affect participants' sleep. Participants were fed diets containing daily kilocalorie levels based on the participant's individual indirect calorimetry measurement. Meals prepared for the dietary interventions were served by a research team member directly to each participant. Food consumption was controlled both in terms of what was consumed and how much was consumed. After the final meal was eaten in the dining room each day, participants signed a food/beverage intake sheet to verify that no foods or beverages from outside of the study were consumed. Space was provided on the sheet to allow participants to record any foods, beverages, or other substances that may have been inadvertently consumed outside of the study within the previous 24-hr period.

CONCLUSION:

In this studies, the relationship between diet and sleep have been discussed. Although not clinically proven, findings reveal a reciprocal relationship between nutrients and sleep. Sleep restriction can lead to higher calorie intake. It is a common finding that those who have short sleep duration have more energy intake from fat and carbohydrate. There are also studies that demonstrate the effects of macro and micronutrients on sleep parameters. It is likely that the effects of these nutrients on sleep are mediated through tryptophan. Tryptophan is essential to the production of serotonin as the best neurotransmitter to induce sleep. Because tryptophan is the precursor of serotonin and melatonin, it plays a role in improving sleep quality among humans. Tryptophan levels depend on food consumption, especially protein, because the body can not synthesize tryptophan. Pyridoxine is involved in tryptophan metabolism in the form of active coenzyme. In the synthesis of serotonin, group B vitamins are also

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needed. However, it remains unclear to what extent the diet can affect sleep. For this reason, protein rich diets especially rich in tryptophan and used as sleep modulators based on the above research. Inclusion of tryptophan rich foods like milk, chicken, fatty fish, walnuts, almonds will get a proper sleep. Magnesium rich foods like kiwi, cherry juice etc triggers melatonin release from the pineal gland by activating the serotinin nasetiltransferaz and GABA. magnesium, which enhances secretion of melatonin from the pineal gland by stimulating N-acetyltransferase activity of serotonin as the key enzyme. It is already known that the activation of GABA (A) receptors promotes sleep.

REFERENCES:

Afaghi, A., O'Connor, H., & Chow, C. (2007). High-glycemic-index carbohydrate meals shorten sleep onset. American Journal of Clinical Nutrition, 85, 426-430.
Afaghi, A., O'Connor, H., & Chow, C. (2008). Acute effects of the very low carbohydrate diet on sleep indices. Nutritional Neuroscience, 11, 146-154.
Åkerstedt T, Ghilotti F, Grotta A, Zhao H, Adami HO, TrolleLagerros Y, et al. Sleep duration and mortality: does weekend sleep matter? J Sleep Res. 2019;28(1):e12712.
Guglielmi O, Lanteri P, Garbarino S. Association between socioeconomic status, belonging to an ethnic minority and obstructive sleep apnea: a systematic review of the literature. Sleep Med. 2019;51:100–6.
Ash T, Davison KK, Haneuse S, Horan C, Kitos N, Redline S, Taveras EM. Emergence of racial/ethnic differences in infant sleep duration in the frst 6 months of life. Sleep Med. 2019;18:100003.
Aysan E, Karaköse S, Zaybak A, Günay İE. Üniversite öğrencilerinde uyku kalitesi ve etkileyen faktörler. Deuhyo Ed. 2014;7(3):193–8.
Benedict C, Hallschmid M, Lassen A, Mahnke C, Schultes B, Schioth BG, et al. Acute sleep deprivation reduces energy expenditure in healthy men. Am J Clin Nutr. 2011;93:1229–366.
Beccuti G, Pannain S. Sleep and obesity. Curr Opin Clin Nutr Metab Care. 2011;14(4):402–12.
Blumenthal, J. A., Babyak, M. A., Hinderliter, A., Watkins, L. L., Craighead, L., Lin, P. H., & Sherwood, A. (2010). Effects of the DASH diet alone and in combination with exercise and weight loss on blood pressure and cardiovascular biomarkers in men and women with high blood pressure: The ENCORE study. Archives of Internal Medicine, 170, 126-135.
Bonnet, M. H. (1986). Performance and sleepiness following moderate sleep disruption and slow wave sleep deprivation. Physiology & Behavior, 37, 915-918.
Borenstein, M., Rothstein, H., & Cohen, J. (2001). Power and precision (Version 2.1) [Computer software]. Englewood, NJ: Biostat.
Buysee, D. J., Reynolds, C. F., 3rd, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Research, 28, 193-213.

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