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A REVIEW ON RELATION OF FACTORS SUCH AS PAIN, MENTAL HEALTH AND CANCER WITH INSOMNIA (ANIDRA) ACCORDING TO VARIOUS RESEARCHES

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Abstract

In today's world, it has been seen that the majority of individuals suffer from at least one chronic condition. Insomnia affects up to 80% of persons with chronic conditions, posing a serious health risk. The most important thing is to get enough sleep. Insomnia affects the majority of individuals nowadays, even the younger generation. A circumstance or condition of insufficient sleep is known as sleep deprivation. Daytime dysfunction, lower immunity, emotional sensitivity, diminished resilience, memory lapses, and major disease processes are all linked to insufficient sleep. Insomnia has three distinct symptoms: trouble getting asleep, difficulty remaining asleep, and weariness during the day. Stress, worry, sadness, and pain are all variables that contribute to persistent sleeplessness. In the field of mental health, the link between depression and anxiety is well-known. Because of the unfavourable association between insomnia and chronic disease, mental health, and pain, this issue is receiving a lot of attention in the scientific community. According to certain research, treating insomnia and concomitant chronic conditions at the same time might enhance disease and insomnia results. As a consequence, insomnia management should be a part of overall health maintenance. We are attempting to evaluate the many study findings in regard to sleeplessness in pain, mental health, and cancer patients in this article.

Key-words: Insomnia, Pain, Depression, Cancer, Mental health, Sleep disturbance, Disease.

Introduction:

Insomnia is one of the most common psychophysiological illnesses, and it causes clinically significant impairment in a variety of aspects of health-related quality of life, as well as increased social costs.^[1] Insomnia is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM 5) as difficulty in initiating or maintaining early morning awakenings accompanied by decreased daytime functioning in form of fatigue, malaise, daytime sleepiness, disturbances, irritability, lack of motivation, energy and impairment in attention, concentration, occurring at least three times per week for at least three months.^[2,3]

Patients who suffer from insomnia are more likely to acquire mental illnesses. Insomnia is also a risk factor for physical diseases such as arterial hypertension, myocardial infarction, type 2 diabetes, according to research published in the recent decade.^[4] Short sleep duration (less than 6 hours per night on average) raises mortality. Epidemiological and health-care statistics, as well as the financial situation of chronic insomnia, reveal a significant influence on the health-care system and society at large.^[5] In affluent nations, the annual direct and indirect costs of insomnia have been estimated to be in the hundreds of billions of dollars, with indirect costs such as higher health-care utilisation, decreased work performance, and increased accident risk accounting for the majority of these expenses.

Context of Insomnia

Non-rapid eye movement (non-REM) sleep and rapid eye movement (REM) sleep are the two phases of sleep physiology. Sleep's restorative capabilities are found in the NREM sub-state and REM sleep, which is connected with dreaming. The NREM stage is critical for bodily repair, whereas REM is necessary for memory formation, cognition, and cellular proliferation. There is a succession of daytime symptoms if restorative sleep is lacking, including mental foggy, diminished vitality, and exhaustion. Insomnia is commonly associated with a wide range of physical, mental, and situational factors. When sleep is disrupted at least three times each week for a month, chronic insomnia develops. Stress, worry, sadness, and pain are some of the most commonly reported causes that contribute

to persistent insomnia. Insomnia can be exacerbated by medical or psychological stresses that cause a hyperarousal cascade of symptoms. The hyperarousal concept of insomnia links an acute stressor to the sympathetic branch of the central nervous system being over-activated. When hyperarousal activation occurs frequently, it reinforces a learnt sleep-disordered behaviour pathway. The circulation of corticotrophin releasing hormone (CRH) is triggered when the arousal regions in the brain are activated. The sympathetic nervous system (SNS) is activated by CRH, which raises heart rate, cortisol production, and emotional brain centre activity.^[6,7]

Causes of Insomnia (Anidra)

Some conditions that commonly leads to insomnia are ^[8,9]

- Aharajanidana (food) - Excessive eating of foods with traits like ruksha, laghu, and tikshnaguna. Excessive smoking, coffee, alcohol, and recreational substances are all harmful.
- Viharajanidana (activities) - Vata-vriddhi and kaphakshya are caused by excessive Vyayama (physical activity), Vyavaya (sexual activity), and Upvasa (fasting). Overindulgence in computer work or television viewing.
- Mansikanidana - Emotional disturbance such as chinta, bhaya, shoka, krodha, etc.
- Other factors -

Kala or kalasheelakshaya - When a person's normal sleep period has passed, he or she would be unable to sleep. Insomnia occurs when a person's natural sleep cycle is disrupted on a regular basis. In older people, vatavridhhi makes them more prone to anidra.

Anidra (loss of sleep) is the most common complaint in many Vikaras (pathological states), mental, neurological, and chronic medical illnesses. Vata and Pitta prakruti persons, according to Ayurveda, are more prone to this sleeping condition.

In the past, sleeplessness was considered a symptom of a comorbidity rather than a fundamental illness. In the last ten to twenty years, research has focused on sleeplessness as a main health problem.^[10] Foley et al. (1995) found that insomnia is often associated with chronic illnesses in a 1982 epidemiologic survey.^[11] In a large and varied cohort of senior persons, the researchers validate prior linkages of sleep disorders with chronic

illnesses and behaviour, establishing the links between insomnia, depression, respiratory disease, over-the-counter drug usage, and physical limitations. The Behavioural Risk Factor Surveillance System Survey of 2009 asked participants about their sleep habits for a month and whether they had any chronic diseases. The study results support the link between sleep deprivation and several of the most common chronic illnesses (such as diabetes, arthritis, heart disease, obesity, stroke, and high blood pressure).

Relation of various factors with insomnia

Mental health – Sleep difficulties have a huge influence on mental health. Insomnia is included as a symptom of the disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). Insomnia is exacerbated by psychiatric problems, which afflict 40-80 percent of mental health patients compared to 10-15 percent of the general population. Kallestad et al. (2012) found that increasing sleep disruption may reduce the treatment benefit of mental health problems in a cross-sectional study of mental health outpatients. Anderson and Bradley (2013) discovered that people with depression had higher sleep problems, which lowers the success rate of depression therapy. Individuals with depression have higher sleep impairments and require quality evaluations for sleep disorders, according to Anderson and Bradley (2013), Hamera et al. (2013), and Motivala et al. (2006a), since insomnia lowers successful response rates for depression therapy. Some antidepressant medications have been shown to have a deleterious impact on sleep architecture, resulting in long-term insomnia after the depression has subsided and the risk of recurrence (Benca & Peterson, 2008; Edge, 2010; Hardy, 2008). Changes in sleep architecture are also caused by depression, including reduced slow wave sleep and REM disruptions, both of which are crucial restorative sleep functions for good cognition and brain function (Anderson & Bradley, 2013; Edge, 2010). Other difficult health management concerns, such as an increase in blood cortisol levels, are exacerbated by depression and sleeplessness (Edge, 2010). Cortisol production raises the risk of weight gain, metabolic dysfunction, and endocrine irregularities, all of which can lead to several other chronic illnesses. [12-15]

Pain - According to Stiefel and Stagno (2004), approximately 50 million Americans suffer from chronic pain, with 70 percent of these people experiencing sleep problems as a result of their suffering. Sleeplessness and pain have a two-way relationship since insomnia heightens pain perception. Opioids are the most often prescribed pain relievers for both acute and chronic pain, but few research have looked at how they alter sleep architecture.^[16,17] To see if opioids (morphine and methadone) impact the architecture, amount, and quality of sleep in healthy, pain-free people, Dimsdale et al. (2007) focus on younger adults. The findings show that opioid usage reduces the amount of time spent in REM and deep restorative sleep cycles by 30-50 percent, resulting in drowsiness, exhaustion, and dizziness. When considering the complexity of multi-drug usage in the management of chronic illnesses, there is also the possibility of other medication interactions (Dimsdale et al., 2007; Stiefel& Stagno, 2004). Since both drugs given for pain and the chronic condition of pain itself impair healthy sleep patterns, there are several paths of causality between chronic illnesses and insomnia.

Cancer - One of the most troubling symptoms connected with a cancer diagnosis is sleep difficulties (Berger, 2009). In the cancer population, sleeplessness is nearly twice as common as in the overall population. According to Langford et al. 30-50 percent of cancer patients have sleep difficulties, and Woodward claims that insomnia can impact up to 88 percent of cancer patients. ^[18,19] All stages of the cancer journey, from diagnosis through post-treatment follow-up and long-term survivorship, can be affected by sleep-wake disorders. Insomnia raises the likelihood of acquiring and/or worsening other chronic medical and psychological problems including stress, anxiety, depression, and pain if left untreated (Enderlin et al., 2011). Adults with cancer experience a variety of unpleasant symptoms during treatment (such as pain, nausea, and exhaustion), which are exacerbated by sleeplessness (Berger, 2009). Sleep disruptions in the oncology population are influenced by cancer physiology, illness symptomatology, psychological stress, and therapy adverse effects.

Discussion

Insomnia is characterised by difficulties in falling asleep or staying asleep, as well as frequent early morning awakenings. It's a condition that affects people of all ages. Insomnia symptoms affect one-third of the general population, and 10% to 15% of those who fulfil the criteria for insomnia disorder. Chronic sleep disruption that causes distress or hinders daily performance is referred to as insomnia disorder. Workplace absenteeism, accidents, and productivity losses all contribute to the societal and economic costs of insomnia. Chronic sleep deprivation has also been linked to a number of negative health effects, including cardiovascular disease, diabetes, and obesity, as well as mood and cognitive impairment.

In regards to insomnia, different studies have been undertaken on chronic illnesses such as mental health, pain, and cancer. Because of the significant research committed to investigating these chronic diseases and the negative impact of insomnia on these patient groups, these specific ailments were chosen. According to the National Institute of Mental Health (NIMH), 18.2% of the general population in the United States (US) over the age of 18 has a mental health disorder. Furthermore, according to the National Institutes of Health (NIH), chronic pain affects 11.2 percent of the adult population, while cancer affects roughly 28% of the population (National Cancer Institute [NCI], 2016). Although mental health diagnoses, pain, and cancer impact a significant amount of the general population, these three ailments are only a small sampling of the various interrelationships between specific disease states and insomnia, with up to 80% of people with chronic diseases experiencing insomnia. Sleep difficulties have a huge influence on mental health. Insomnia is exacerbated by psychiatric diseases, which afflict 40-80 percent of mental health patients.^[20] The difficulties of controlling insomnia in mental health patients are exemplified by depression, a prevalent mental health disorder linked to insomnia. According to certain research, people with depression have higher sleep problems and need excellent evaluations for sleep disorders, because insomnia lowers the success rate of depression therapy.^[21] Another persistent ailment is pain. Sleeplessness and pain have a reciprocal relationship since insomnia heightens pain perception. Following the usage of

opioids for pain relief, side effects such as increased next-day drowsiness and exhaustion, as well as sleep disturbance, have been reported. In the cancer population, sleeplessness is nearly twice as common as in the overall population. Cancer patients have also been seen complaining about insomnia. According to Langford et al. (2011), 30-50 percent of patients with cancer have some form of sleep disruption, and insomnia affects up to 88 percent of persons with cancer. All stages of the cancer journey, from diagnosis through post-treatment follow-up and long-term survivorship, can be affected by sleep-wake disorders. Insomnia raises the likelihood of acquiring and/or worsening other chronic medical and psychological problems including stress, anxiety, depression, and pain if left untreated.^[22-24]

Conclusion

Insomnia is a highly prevalent neuropsychiatric disorder all over the world, which causes significantly impaired quality of life and enormous societal costs. In traditional concept of insomnia, it was considered as a secondary pathological condition rather than a disease. But as insomnia has been better understood, now it is considered that insomnia can be caused as an independent disease as well as secondary product from other diseases. The researchers confirm previous associations of sleep disturbances co-existing with chronic diseases and behaviour in a large and heterogeneous population of elderly adults, demonstrating the correlations of insomnia to depression, to respiratory disease, to over-the-counter medication use, and to physical impairments.

Insomnia is a common neuropsychiatric illness that has a substantial impact on people's quality of life and costs society a lot of money. In the past, insomnia was thought to be a secondary pathological state rather than an illness. However, as insomnia has been more understood, it is now thought that insomnia can be caused as a separate disease or as a side effect of other illnesses. In a large and varied population of elderly persons, the researchers validate prior linkages of sleep disorders with chronic illnesses and behaviour, establishing the links between insomnia, depression, respiratory disease, over-the-counter drug usage, and physical limitations.

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