



Awareness of medical applications of Modafinil therapy among dental students

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ABSTRACT

Modafinil was initially evolved by a French neurophysiologist Professor Michel Jouvet. Modafinil started with the late 1970s creation of a progression of benzhydryl sulfinyl mixes, including adrafinil that was used in the management of narcolepsy in 1986. Modafinil is fundamentally utilized for its antisomnic function. The aim of the survey is for assessing the awareness of medical applications of Modafinil therapy amongst dental students. A cross-sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about Modafinil therapy in medical applications, their medicinal uses, antisomnic activity, mechanism of action and side effects. The responses were recorded and analysed. 94% of the respondents were not aware of medical uses of Modafinil therapy. 83% were not aware of antisomnic activity therapy. 90% were not aware of the mechanism of action of Modafinil therapy. 85% were not aware of the side effects of Modafinil therapy. The awareness about the use of Modafinil therapy in medical applications is very less among dental students. Increased awareness programs and sensitization and continuing dental education programs along with greater importance to the curricular modifications should be incorporated to improve the awareness levels.



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INTRODUCTION

Modafinil was initially evolved by a French neurophysiologist Professor Michel Jouvet. Modafinil started with the late 1970s creation of a progression of benzhydryl sulfinyl mixes, including adrafinil that was used in the management of narcolepsy

in 1986. Modafinil is fundamentally utilized for its antisomnic function. Modafinil is the essential metabolite of adrafinil, coming up short on the polar - OH bunch on its terminal amide (Ballas *et al.*, 2002), and has comparative movement to the parent drug yet is considerably more generally utilized. Modafinil was avowed by the U.S. Food and Drug Administration for the management of narcolepsy and in 2003 for sleep issues and obstructive sleep apnea/hypopnea (Camacho and Stein, 2002; Jha *et al.*, 2008).

The activity of modafinil for narcolepsy and sleep-wake issue stays obscure. Modafinil goes about as an atypical, particular, and powerless dopamine inhibitor which is a roundabout way initiates the arrival of orexin neuropeptides and histamine from the horizontal nerve center and tuberomammillary core, separately all of which may add to increased arousal. Modafinil and its evidential metabolite, modafinil acid might be measured in urine, plasma

or serum to screen dose in those accepting the medication restoratively, to affirm an analysis of harming in infirmity patients or to aid the legal examination of vehicular criminal traffic offenses (Elliott and Swick, 2015; Taylor and Russo, 2000).

Modafinil is hypothesised to work in a localised mode, utilizing histamine, hypocretin, gamma-aminobutyric acid, epinephrine and glutamate. It is a biotolerant medication with a low disposition for abuse and is often used for divergent indications (Mehlman, 2009). This study was done with an aim to assess the awareness about the medical applications of Modafinil among dental students.

MATERIALS AND METHODS

A cross-sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about Modafinil therapy in medical applications, their medicinal uses, antisomnic activity, mechanism of action and side effects. The responses were recorded and analysed.

RESULTS AND DISCUSSION

94% of the respondents were not aware of medical uses of Modafinil therapy (Figure 1). 83 % were not aware of antisomnic activity therapy (Figure 2). 90 % were not aware of the mechanism of action of Modafinil therapy (Figure 3). 85% were not aware of the side effects of Modafinil therapy (Figure 4).

Modafinil is a useful medication with an enormous possibility in psychiatry and general medication. Rewarding day sleepiness is perplexing, and deciding the exact idea of the sleep issue is imperative. Modafinil might be a compelling operator in several sleep conjunctures. Until now, the most grounded proof among off-mark utilizes exists for the utilization of modafinil in a lack of ability to concentrate consistently scatter, postanaesthetic sedation, and cocaine reliance and withdrawal and also as an aide to antidepressant medication for depression.

In sleep-denied people, modafinil improves the state of mind, weakness, sleepiness and cognizance to a comparable degree as caffeine however has a more extended term of activity. Proof for improved perception in non-sleep-denied sound volunteers is contentious. Modafinil improves excess sleepiness and sickness seriousness in each of the three issues for which the US FDA endorses it, for example, narcolepsy, shift-work sleep issue and obstructive sleep apnoea with leftover over the top sleepiness in spite of ideal utilization of consistent positive aviation route pressure (CPAP) (Rush *et al.*, 2002; Wisor,

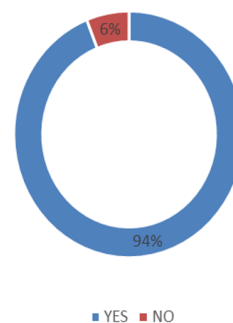


Figure 1: Awareness of medical uses of Modafinil therapy

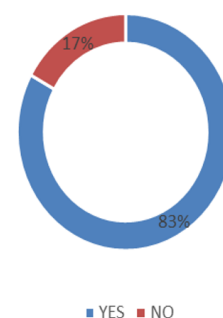


Figure 2: Awareness of anti somnic activity of Modafinil therapy

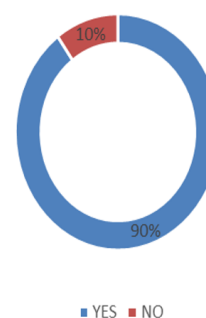


Figure 3: Awareness of mechanism of action of Modafinil therapy

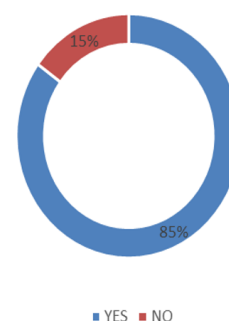


Figure 4: Awareness of side effects of Modafinil therapy

2013).

Modafinil was useful for depressing side effects in bipolar disorder in a study that prohibited patients with stimulant-initiated mania. A solitary portion of modafinil may rush recuperation from general sedation after day medical procedure. A solitary portion of modafinil reinforced the capacity of crisis room doctors to go to instructional talks following a night move, yet didn't improve their capacity to commute home and caused sleep aggravations subsequently. Modafinil had a significant misleading impact on results, for example, weakness, over the top sleepiness and despondency in patients with horrible mental unhealthiness, significant depressive disorder, schizophrenia, post-polio exhaustion and various sclerosis diseases (Connolly *et al.*, 2015).

Modafinil has been used non-restoratively as a "smart drug" by understudies, office workers and warriors, As a 'smart drug' it as far as anyone knows increases mental fixation and stays away from rest, attributes which attract understudies, specialists in the corporal and tech domains, aeronautics based military workforce, masters, truck operators and call-center employees (Eckart, 2006).

Modafinil and armodafinil have been concentrated as a supplement to antipsychotic prescriptions in the management of schizophrenia. They have been reliably appeared to have no impact on positive side effects or psychological execution. A 2015 meta-investigation found that modafinil and armodafinil may marginally lessen contrary indications in individuals with intense schizophrenia. However, it doesn't seem valuable for individuals with the condition who are steady, with high negative manifestation scores (Eckart, 2006). Among drugs exhibited to be compelling for diminishing negative side effects in blend with enemies of psychotics, modafinil and armodafinil are among the less effective sizes (Andrade *et al.*, 2015).

Modafinil is utilized off-mark in studies with individuals with side effects of chemotherapy subjective impedance, otherwise called "chemobrain", yet a 2011 survey found that it was no better than placebo. It is in use in various sclerosis related exhaustion, yet the subsequent proof was feeble and equivocal (Portela *et al.*, 2011). General sedation is required for some medical procedures. Yet, there might be waiting weakness, sedation, or potentially laziness after the medical procedure has finished that goes on for a considerable length of time to days. In outpatient environment wherein patients are released home after a medical procedure, this sedation, weariness and periodic unsteadiness is risky, and modafinil had been tried for its utilization

in these conditions (Mankad *et al.*, 2010).

Modafinil actuates and hinders a few cytochrome P450 isoenzymes and has the potential for cooperating with various drugs. The modafinil portion ought to be decreased in the old and patients with hepatic sickness. Alertness is required in patients with extreme renal deficiency as a result of considerable increments in levels of modafinil acid. Regular unfavorable occasions with modafinil incorporate insomnia, cerebral pain, nausea, anxiety and hypertension. Diminished hunger, weight reduction have been accounted for with more noteworthy recurrence in kids and young people, most likely because of the higher portions utilized. Modafinil has mild addictive potency in a few patients (Lavault *et al.*, 2011).

CONCLUSION

The awareness about the use of Modafinil therapy in medical applications is very less among dental students. Increased awareness programs and sensitization and continuing dental education programs along with greater importance to the curricular modifications should be incorporated to improve the awareness levels.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

- Andrade, C., Kisely, S., Monteiro, I., Rao, S. 2015. Antipsychotic augmentation with modafinil or armodafinil for negative symptoms of schizophrenia: Systematic review and meta-analysis of randomized controlled trials. *Journal of Psychiatric Research*, 60:14–21.
- Ballas, C. A., Kim, D., Baldassano, C. F., Hoeh, N. 2002. Modafinil: past, present and future. *Expert Review of Neurotherapeutics*, 2(4):449–457.
- Camacho, A., Stein, M. B. 2002. Modafinil for Social Phobia and Amphetamine Dependence. *American Journal of Psychiatry*, 159(11):1947–1948.
- Connolly, J. J., Glessner, J. T., Kao, C., Elia, J., Hakonarson, H. 2015. Attention-Deficit Hyperactivity Disorder and Pharmacotherapy—Past, Present, and Future: A Review of the Changing Landscape of Drug Therapy. *Therapeutic Innovation & Regulatory Science*, 49(5):632–642.

- Eckart, W. U. 2006. Man, medicine, and the state: The human body as an object of government sponsored medical research in the 20th century. Franz Steiner Verlag.
- Elliott, L., Swick, T. 2015. Treatment paradigms for cataplexy in narcolepsy: past, present, and future. *Nature and Science of Sleep*, pages 159–169.
- Jha, A., Weintraub, A., Allshouse, A., Morey, C., Cusick, C., Kittelson, J., Harrison-Felix, C., Whiteneck, G., Gerber, D. 2008. A Randomized Trial of Modafinil for the Treatment of Fatigue and Excessive Daytime Sleepiness in Individuals with Chronic Traumatic Brain Injury. *Journal of Head Trauma Rehabilitation*, 23(1):52–63.
- Lavault, S., Dauvilliers, Y., Drouot, X., Leu-Semenescu, S., Golmard, J.-L., Lecendreux, M., Franco, P., Arnulf, I. 2011. Benefit and risk of modafinil in idiopathic hypersomnia vs. narcolepsy with cataplexy. *Sleep Medicine*, 12(6):550–556.
- Mankad, M. V., Beyer, J. L., Weiner, R. D., Krystal, A. 2010. Clinical Manual of Electroconvulsive Therapy. American Psychiatric Publishing, Inc..
- Mehlman, M. J. 2009. The Price of Perfection: Individualism and Society in the Era of Biomedical Enhancement. JHU Press.
- Portela, M. A., Álvaro S Rubiales, Centeno, C. 2011. The use of psychostimulants in cancer patients. *Current Opinion in Supportive and Palliative Care*, 5(2):164–168.
- Rush, C. R., Kelly, T. H., Hays, L. R., Baker, R. W., Wooten, A. F. 2002. Acute behavioral and physiological effects of modafinil in drug abusers. *Behavioural Pharmacology*, 13(2):105–115.
- Taylor, F. B., Russo, J. 2000. Efficacy of Modafinil Compared to Dextroamphetamine for the Treatment of Attention Deficit Hyperactivity Disorder in Adults. *Journal of Child and Adolescent Psychopharmacology*, 10(4):311–320.
- Wisor, J. 2013. Modafinil as a Catecholaminergic Agent: Empirical Evidence and Unanswered Questions. *Frontiers in Neurology*, 4.