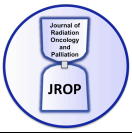
Jour Radiat Oncol Palliat.2018;2(1):75-77



ORIGINAL ARTICLE **Open Access**

Effects of different doses of melatonin on sleep problems

Medina İsmayilova[1], Gül Yücesan[2]

1Biruni University, Faculty of Medicine, Department of Internal Medicine
2Bezmialem Vakif University, Faculty of Medicine, Department of Obstetricts and Gyneocology

ABSTRACT

BACKGROUND: *In people with melatonin deficiency, do not deteriorate only sleep patterns but also a deterioration in the whole hormonal balance. Melatonin can be used high doses for sleeping problems. However, melatonin can be effective even at very low doses. Therefore, we have conducted a study to demonstrate that the solve for problem of sleeping with low-dose melatonin can be more reliably resolved.*

METHODS: *A retrospective study was performed on 17 patients who had sleep problems and could not solve this problem with other drugs. Karnofski performances median 80% of the patients aged between 44-83 years and used melatonin 1-15 mg daily.*

RESULTS: *The patients which used dose of 1 mg melatonin with 2 days intervals for 1 month fits well. Their median increase of performance were 10%.*

DISCUSSION: *According to the results of this study, even 1-3 mg melatonin may cause some side effects such as diarrhea in long term use. Elderly and dementia patients should be more careful about this problems. Long-term use of melatonin above 3 mg should be avoided. Intermittent use of 1 mg of melatonin can be sufficient according to this study results.*

CONCLUSION: *It should be noted that it can be effective even at very low doses such as 1 mg and also intermittently. This retrospective study was performed in a small number of non-homogeneous patient groups. The bigger studies are needed about this topic.*

KEYWORDS: *melatonin, sleep problems, melatonin hepatotoxicity, melatonin overdose*

Corresponding author

Medina İsmayilova. Biruni University, Faculty of Medicine, Department of Internal Medicine
e-mail: ismayilovam@gmail.com

Conflict of Interest: *There is no conflict of interest in this study*
Ethical Approval: *There is no need to ethical approval because It is a little retrospective study*
Funding: *There is no funding*

INTRODUCTION

Melatonin is a hormone secreted from the pineal gland and produced from tryptophan. Its chemical formula is N-acetyl-5-methoxytryptamine. The most important benefit of melatonin in the body is the sleep-induced circadian rhythm. Melatonin secretion is from the pineal gland and is secreted most intensely between 22.00 and 02.00. As the lack of melatonin deficiency in young people, sleep problems are less common (1). The person should be in sleep and in the dark to be able to secrete melatonin at the highest level (1-3). Due to its hypnotic effect, melatonin is also called the dark hormone (1-3).

Accepted 12.07.2018, Published 30.08.2018

In people with melatonin deficiency, only sleep patterns do not deteriorate. but also a deterioration in the whole hormonal balance. Because melatonin released to other hormones from the pituitary gland with a balance. Deficiency of melatonin in women can lead to hormonal balance deterioration and menstrual irregularities (2, 3).

Melatonin has been reported to be beneficial in liver toxicity caused by some drugs such as Acetaminofen (4, 5). Since the poisoning margin due to melatonin is quite wide, there is no overdose without suicide intention (6-9).

However, melatonin can be effective even at very low doses. The minimum melatonin form in the market is 3 mg tablets. Melatonin is sold over the counter in pharmacies in Turkey and in the world as a sleeping medication (6, 7). For this reason, people can take melatonin freely and use it as a sleeping and also suicide pill.

Therefore, we have conducted a study to demonstrate that the problem of sleeping with low-dose melatonin can be more reliably resolved.

MATERIAL METHODS: A retrospective study was performed on 17 patients who had sleep problems and could not solve this problem with other drugs.

Karnofski performances median 80% of the patients aged between 44-83 years could not solve the sleep problem with other drugs and used melatonin 1-15 mg daily (Table 1).

Table 1. Demographic characteristics of patients using melatonin

Characters	Number of patient	%
Age (44-83)	17	100
Gender		
Male	5	29.4
female	12	70.5
Karnofski		
60-70	4	23.5
80-90	13	76.4

In this study, 3 of the patients had Alzheimer's disease, 4 had osteoporosis and 3 had cancer-related brain metastasis. The doses of melatonin are shown in table 2.

Table 2. Melatonin doses used by patients

Melatonin doses	Number of patient	%
15 mg	3	17.6
3mg	4	23.5
1mg (2 day interval)	10	58.8

RESULTS

In 3 patients using 15 mg melatonin had slept beautifully, their appetites and performances increased to median 10 points in first 1-3 days. Melatonin was discontinued after day 3 because of excessive irritability and a decrease in sleep. In 4 patients who used 3 mg melatonin, 3 of them slept well for the first 7 days and their performance scoring increased to 10 %. But 3 of these 4 patients had a diarrhea related melatonin using after 7 days. The patients which used dose of 1 mg melatonin with 2 days intervals for 1 month fits well. Their median increase of Karnofski performance scoring were 10%.

The 83-year-old patient with Alzheimer's disease developed a diarrhea, twice a day, despite a 1 mg dose ofmelatonin. Therefore, treatment was suspended after 1 month.

DISCUSSION

Pineal gland produces the highest level of melatonin between midnight and morning 2 (1-3, 10).

Melatonin has a wide range of safety (4-7). In the literature, it has been determined that there is no minimal toxicity or toxicity even in the 6 gr melatonin intake (4-7). The 6 g toxic dose given in the literature is for single use. Because it is sold freely in pharmacies, it can also be used for suicidal purposes.

According to the results of this study, even 1-3 mg melatonin may cause some side effects such as diarrhea in long use. Elderly and dementia patients should be more careful about this issue. Long-term use of melatonin above 3 mg should be avoided. If the person is using other drugs due to comorbid diseases, caution should be exercised as the effectiveness of melatonin will also change. Therefore, extensive studies are needed with

Accepted 12.07.2018, Published 30.08.2018

the use of melatonin for a long time.

CONCLUSION

Melatonin is a hormone that is essential for the body and can lead to serious problems and diseases. Therefore, it should be used at the appropriate dose and time. It should be noted that it can be effective even at very low doses of 1mg and also intermittently. This retrospective study was performed in a small number of non-homogeneous patient group. Bigger studies are needed about this topic.

REFERENCES

1.Zhadanova IV, Wurtman RJ, Lynch HJ. Sleep inducing efects of low doses of melatonin ingested in the evening. Clin Parmacol Ther 1995; 57: 552-8.

2.Balantine J, Hagman J. More on melatonin. Jam Acad Child Adolesc Psychiatry 1997; 36: 1013.

3.Nordlung JJ, Lerner AB. The effect of oral melatonin on skin color and on the release of pituitary hormones. J Clin Endocrinol Metab 1977; 45: 768-74.

4.Dremza IK, Cheshchevik VT, Zabrodskaia SV, Maksimchik IuZ, Sudnikovich EIu, Lapshina EA, et al. Hepatotoxic efects of acetaminophen. Protective properties of tryptophan-derivatives. Biomed Khim 2010; 56: 710-8.

5. Kurus M, Esrefoglu M, Sogutlu G, Atasever A. Melatonin prevents cyclosporineinduced hepatotoxicity in rats. Med Princ Pract 2009; 18: 407-10.

6. Gül M, Cesareddin D, Cander B, Önal A, Dündar D, Harmankaya Z, Melatonin Poisoning: A Case Report. Journal of Academic Emergency Medicine Case Reports. 2012, Vol. 3 Issue 4, p132-133. 2p.

7. Jarvis D. Melatonin is available over the counter. BMJ 1996; 313: 629.

8. Holliman BJ, Chyka PA. Problems in assessment of acute melatonin overdose. South Med J 1997; 90: 451-3.

9. Arent J. Safety of Melatonin in long term use. J Biol Rhythms 1997; 12: 673-81.

10. Waldhauser F, Lynch HJ, Wurtman RJ. Melatonin in human body fluids: clinical significance. The pineal gland. Reiter RJ (ed) New York Raven Pres, 1984: 345-70.

Accepted 12.07.2018, Published 30.08.2018