



A Case Report of the First Propofol Addiction in Turkey

Türkiye'den İlk Propofol Bağımlılığı Olgu Sunumu

Gültürk Köroğlu¹, Aysu Hayriye Tezcan²

¹Department of Psychiatry, Prof. Dr. Mazhar Osman Training and Research Hospital for Psychiatry, Neurology and Neurosurgery, İstanbul, Turkey

²Clinic of Anaesthesiology and Reanimation, Ankara Numune Training and Research Hospital, Ankara, Turkey

Propofol is a potent anaesthetic drug and also an effective sedative agent. Also, propofol may be used for non-anaesthetic purposes such as the treatment of seizures, migraine and tension headache in clinical practice. It has been abused, particularly among health-care providers with high mortality rate. This report presents the case of a propofol-dependent patient who was an emergency medicine doctor with no difficulties in obtaining the drug. He himself visited our clinic for the treatment of propofol dependence. We started the patient's treatment with pharmacotherapeutic medicines and individual psychotherapy. Fourteen days after starting the therapy, the patient was discharged from hospital on his own will and he did not attend the follow-up visits in the outpatient clinic. Then, we were informed of his death, which was suspected to have occurred owing to drug intoxication in the hospital in which he worked. Nevertheless, the reason of death was important; the importance of this case report is to provide information regarding the drug's dependence profile. This is the first case report indicating propofol dependence in Turkey. Because of its easy access, rapid onset time and short duration of action, propofol dependence is increasing. We think that adding propofol to the controlled drug list and improving the knowledge of the clinicians regarding its abuse potential may limit the dependence cases.

Keywords: Propofol, dependence, euphoria, abuse

Propofol hem güçlü bir anestetik hem de etkili bir sedatiftir. Aynı zamanda epileptik nöbet, migren, gerilim tipi baş ağrısı tedavisi gibi anestezi dışı klinik kullanım alanları da vardır. Özellikle sağlık çalışanları arasında suistimal edilmektedir ve yüksek ölüm oranına sahip bir bağımlılık tipi vardır. Bu olgu ile ilacı temin etmekte zorluk çekmeyen, propofol bağımlılığı olan bir acil servis doktoru sunulmaktadır. Hasta, bağımlılığının tedavisi için kliniğimize kendi iradesiyle başvurmuştur. Hastanın tedavisine farmakolojik tedavi ile ve bireysel davranış terapisiyle başlanmıştır. Tedavinin ondördüncü günü hasta kendi iradesiyle hastaneden taburcu olmuş ve ayaktan takiplerine de gelmemiştir. Daha sonrasında tarafımıza hastanın çalıştığı hastanede öldüğü ve propofol intoksikasyonundan şüphelenildiği haberi gelmiştir. Her ne kadar ölüm nedeni önemli de olsa, bu olgu sunumunun önemi propofol bağımlılığı profili hakkında bilgi vermektir. Bu olgu sunumu Türkiye'den bildirilen ilk propofol bağımlılığı olgu sunumudur. Hızlı ve kısa etki süresi ve kolay ulaşılabilirliği ile propofol bağımlılığı giderek artmaktadır. Propofolün dağıtımını kontrollü ilaçlar arasına alınması ve ilacın suistimal edilebilirliği hakkında klinisyenlerin bilgilendirilmesi ile propofol bağımlılığı olgularının azaltılabileceği düşüncesindeyiz.

Anahtar kelimeler: Propofol, bağımlılık, öfori, suistimal

Introduction

Propofol is an intravenous agent used for sedation or induction of general anaesthesia. Short acting time, fast recovery, few side-effects and amnestic properties are the advantages of the drug in clinical practice. Unconsciousness occurs at 30 s after the injection of 1.5–2.5-mg kg⁻¹ propofol and lasts up to 5–10 min (1, 2). Propofol has many clinical uses outside of the operating room such as to treat seizure, migraine, tension headache and alcohol abstinence or to sedate the patients while performing electroconvulsive therapy, gastrointestinal or any other unpleasant procedures (1–4). The increasing usage of the drug for different procedures results in an increasing number of human exposure. Patients who are medical professionals or lay persons reported pleasant and euphoric effects without any residual effects and high satisfaction rates after usage (2–5). In light of the above-mentioned information, medical professionals thought that the drug may have abuse potential; this hypothesis was supported with several case reports (6–9). The most remarkable report was the case of Michael Jackson (7). However, the drug is not regulated as a controlled substance in any country, except South Korea (10). Hence, propofol dependence case reports still preserve value to demand attention toward its potential abuse. Particularly, addiction case reports rather than death reports with propofol increase the knowledge regarding psychiatric management of propofol

Address for Correspondence/Yazışma Adresi: Dr. Aysu Hayriye Tezcan, Ankara Numune Eğitim Araştırma Hastanesi, Anesteziyoloji ve Reanimasyon Kliniği, Ankara, Türkiye E-mail: aysndr@gmail.com

©Telif Hakkı 2015 Türk Anesteziyoloji ve Reanimasyon Derneği - Makale metnine www.jtaics.org web sayfasından ulaşılabilir.

©Copyright 2015 by Turkish Anaesthesiology and Intensive Care Society - Available online at www.jtaics.org

Received / Geliş Tarihi : 16.01.2015

Accepted / Kabul Tarihi : 25.03.2015

addiction. Therefore, we report a propofol-dependent emergency medicine doctor who gave up our psychiatric therapy on his own will; after sometime, he was found dead in his emergency service due to suspected propofol overdose.

Case Presentation

The patient was a 29-year-old male emergency medicine doctor who was admitted to the psychiatry clinic on his own will because of his propofol addiction that continued for 2 years. During these 2 years, he stopped using propofol for 2 months on his own will on account of his marriage. However, he started abusing propofol again. After his unsuccessful efforts, he was convinced to attend a psychiatric rehabilitation program. He was hospitalised after his first evaluation.

He had started to use propofol repeatedly for relieving pain caused by nephrolithiasis. He did not have a history of any drug abuse, except a history of smoking. After repeated drug exposures for pain relief, he started to use it for recreational purposes because of its pleasant effects. He reported that his energy and courage increased, and that he felt happier and relaxed after propofol use. He did not report any unpleasant residual effects or withdrawal symptoms. When he visited for therapy, he was using approximately up to 40–50-mg propofol per injection and a total of 200–300-mg propofol per day intravenously. Tolerance for the desired effects did not occur. He reported that he had obtained the drug from the hospital easily. The most important reason for craving the drug was the feeling of euphoria and relaxation.

After his first examination, it was found that his general physical status and appearance was compatible with his age and socioeconomic status. His attention and concentration was disoriented. His mood was depressed, thoughts were rational and objective and speaking tone as well as speaking speed were low. Blood and urine analyses were normal; no psychoactive substance was determined in urine.

In pharmacological treatment, diazepam, quetiapine and sertraline were used. Diazepam was ceased in a week by gradually decreasing the dose. Supportive and cognitive psychotherapy interviews were conducted with the patient, and the patient was asked to participate in the group therapies for addicted patients that were performed for 4 days per week. He did not show any withdrawal symptoms. However, after 14 days, he refused to participate in therapies any further and left the hospital. After 2 years, it was learnt that the patient was found dead in his study room at the hospital's emergency department due to suspected propofol overdose. Because of legal difficulties, we cannot report the post-mortem examination. Written informed consent was provided from the patient's next of kin for this case report.

Discussion

This case was the first propofol addiction reported in Turkey, and this study is the first case report in the literature of

an emergency medicine doctor who became dependent on propofol. Since 1992, propofol has been discussed with regard to its abuse potential after the first propofol addiction case report (11). Propofol has several desirable properties superior to those of other sedatives such as easy access, rapid onset of action, short duration of action and minimal or no residual side-effects (12). These properties may be the major factor for the increase in the number of addiction cases. The first propofol addiction case report documented a patient who preferred propofol to midazolam and fentanyl because of its advantages, as described above (11). In addition to the above-mentioned advantages, this patient started using propofol for stress relief, which was eventually followed by craving (11). In several reports, most cases of propofol dependence were not after propofol anaesthesia for an operation. Although they may experience the same effects, these patients do not know as to which drug is used for anaesthesia. Therefore, authors thought that these patients are not under the risk of propofol addiction. A majority of propofol abusers use the drug for non-anaesthetic purposes such as stress relief, insomnia relief, pain relief and euphoria (3, 9, 11, 13). Headache treatments, gastrointestinal endoscopic procedures or nephrolithiasis pain relief such as the case of our patient are some methods to meet and experience propofol effects. These procedures are mostly performed by healthcare providers who are not anaesthesiologists and who are not well learned regarding the pleasant effects of propofol and its abuse potential. However, because of its easy access and lack of sufficient information regarding its routine use in medical textbooks, some anaesthesiologists also may not be aware of its abuse potential. Thus, case reports regarding propofol dependence are important to improve the knowledge of the healthcare providers.

Healthcare providers who use propofol may know its pleasant effects and may abuse the drug without any personal experience. A review examined propofol abuse or dependence cases between 1992 and 2007 and reported that propofol dependence resulted in the death of 38 patients. Nine of them were anaesthesiologists and three were other medical professionals (12). According to this data, propofol dependence is a very dangerous addiction because of its high mortality rate owing to unconsciousness and apnoea even with low doses.

We know that propofol causes euphoria, stress relief, sexual fantasies and dreams as well as sexual disinhibition; thus, psychological dependence is more common than physical dependence (12). Studies regarding the subjective effects of propofol reported that drug evokes positive feelings, such as happiness, after injections (5, 14); it has a very high Morphine–Benzedrine Group (MBG) Scale, which is used as an index of euphoria scores, similar to that for morphine or marijuana that are highly abused drugs (5). Our patient's dependence pattern is compatible with this data similar to that of patients in other case reports (11, 13). For the patient, euphoria was the most important reason for craving the

drug. Including drug-craving behaviour, our patient showed other strong dependence symptoms such as loss of control, continued use of the drug despite social life disruption and incompatibility with psychiatric treatments. In addition, this case shows the failure of usual addiction psychotherapy for propofol addiction. Under these conditions, we thought that reporting propofol-dependent patients who are followed up by a psychiatrist is more important than reporting deaths caused by propofol to provide improvement in the knowledge of propofol addiction treatment.

Similar to all other countries worldwide, except South Korea, propofol dispensing is not restricted and not under control in our country. Strict control may not eradicate propofol abuse but easy access conditions may continue to increase propofol abuse. Hence, it should not be ignored that it is essential for the ministries of health to take precautions regarding propofol dispensing.

Conclusion

The above-mentioned case reports and clinical studies show that propofol has a serious abuse potential because of its pleasant subjective effects and inconsiderable residual effects that cause social life disruptions or death of lay persons or medical professionals. Easy drug access and insufficient knowledge of healthcare providers are contributing factors for its increased abuse frequency. Here, we have attempted to highlight the potential danger regarding increase in propofol dependence as well as to highlight the importance of the knowledge of clinicians and for taking appropriate precautions for its dispensing.

Informed Consent: Written informed consent was obtained from patients' parents who participated in this case.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - G.K., A.H.T.; Design - G.K., A.H.T.; Supervision - G.K., A.H.T.; Funding - G.K.; Materials - G.K.; Data Collection and/or Processing - G.K.; Analysis and/or Interpretation - G.K., A.H.T.; Literature Review - G.K.; Writer - G.K., A.H.T.; Critical Review - G.K., A.H.T.

Acknowledgements: Thanks to Dr. Pelin Kaplan Sayan and Doç. Dr. Hasan Mırsal for their contributions in the treatment of the case.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

Hasta Onamı: Yazılı hasta onamı bu olguya katılan hastanın ailesinden alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir - G.K., A.H.T.; Tasarım - G.K., A.H.T.; Denetleme - G.K., A.H.T.; Kaynaklar - G.K.; Malzemeler - G.K.; Veri Toplanması ve/veya İşlemesi - G.K.; Analiz ve/veya Yorum - G.K., A.H.T.; Literatür Taraması - G.K.; Yazıyı Yazan - G.K., A.H.T.; Eleştirel İnceleme - G.K., A.H.T.

Teşekkür: Olgunun tedavisine katkılarından dolayı Dr. Pelin Kaplan Sayan'a ve Doç. Dr. Hasan Mırsal'a teşekkür ederim.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

References

1. Marik PE. Propofol: therapeutic indications and side effects. *Curr Pharm Des* 2004; 10: 3639-49. [CrossRef]
2. Sipe BW, Scheidler M, Baluyut A, Wright B. A prospective safety study of a low-dose propofol sedation protocol for colonoscopy. *Clin Gastroenterol Hepatol* 2007; 5: 563-6. [CrossRef]
3. Schneider U, Rada D, Rollnik JD, Passie T, Emrich HM. Propofol dependency after treatment of tension headache. *Addict Biol* 2001; 6: 263-5. [CrossRef]
4. Roh S, Park JM, Kim DJ. A case of propofol dependence after repeated use for endoscopy. *Endoscopy* 2011; 43: E362. [CrossRef]
5. Tezcan AH, Ornek DH, Ozlu O, Baydar M, Yavuz N, Ozaslan NG, et al. Abuse potential assessment of propofol by its subjective effects after sedation. *Pak J Med Sci* 2014; 30: 1247-52.
6. Drummer OH. A fatality due to propofol poisoning. *J Forensic Sci* 1992; 37: 1186-9. [CrossRef]
7. Levy RJ. The Michael Jackson Autopsy: Insights Provided by a Forensic Anesthesiologist. *J Forensic Res* 2011; 2: 138. [CrossRef]
8. Roussin A, Mirepoix M, Lassabe G, Dimestre-Toluet V, Gardette V, Montastruc JL, et al. Death related to a recreational abuse of propofol at therapeutic dose range. *Br J Anaesth* 2006; 97: 268. [CrossRef]
9. Bonnet U, Scherbaum N. Craving dominates propofol addiction of an affected physician. *J Psychoactive Drugs* 2012; 44: 186-90. [CrossRef]
10. Lee J. Propofol abuse in professionals. *J Korean Med Sci* 2012; 27: 1451-2. [CrossRef]
11. Follette J, Farley WJ. Anesthesiologist addicted to propofol. *Anesthesiology* 1992; 77: 817-8. [CrossRef]
12. Roussin A, Louis Montastruc J, Lapeyre-Mestre M. Pharmacological and clinical evidences on the potential for abuse and dependence of propofol: A review of the literature. *Fundam Clin Pharmacol* 2007; 21: 459-66. [CrossRef]
13. Fritz GA, Niemczyk WE. Propofol dependency in a layperson. *Anesthesiology* 2002; 96: 505-6. [CrossRef]
14. Zacny JP, Lichtor JL, Coalson DW, Finn RS, Uitvlugt AM, Glisten B, et al. Subjective and psychomotor effects of subanesthetic doses of propofol in healthy volunteers. *Anesthesiology* 1992; 76: 696-702. [CrossRef]