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Case Report

Tramadol Induced Vomiting

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ABSTRACT

Adverse Drug reaction is defined as the unintended response to a drug which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease or for the modifications of physiological functions. Tramadol is a codeine analog which is commonly used as an analgesic. Two cases of Tramadol induced vomiting are presented. A middle aged two female patients were admitted to the hospital in which one patient was diagnosed with cervical radiculopathy and lumbar disc disease and the other with acute synovitis on both knees. On the first day she started with intravenous tramadol 50mg thrice a day for pain, then she experienced three episodes of vomiting for which she was given intravenous ondansetron4mg. Second day the same drug was given that also developed two episodes of vomiting. Both patients were administered with Tramadol for pain and experienced vomiting which was treated with ondansetron. The drug was stopped and alternative analgesic was given.

Key words: Prophylaxis, Diagnosis, Tramadol, Cervical radiculopathy, Vomiting, Analgesic.

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INTRODUCTION

Tramadol is a centrally acting, synthetic opioid analgesic agent. It exerts its analgesic effect by inhibiting the re-uptake of norepinephrine and serotonin and also by weak opioid receptor agonism, mechanisms that are due to tramadol and its active metabolite O-desmethyltramadol. Tramadol also consists of 2 enantiomers, (+) – tramadol, which preferentially inhibits serotonin uptake and (-) - tramadol, which is the potent inhibitor of non-epinephrine reuptake. It is used for the treatment of moderate to severe pain.[1] It is used in patients who do not respond to the simple analgesics and in whom Non-Steroidal Anti Inflammatory drugs are contraindicated.[2] Here, we report two cases of Tramadol induced vomiting in anorthopedic ward and were managed after its early recognition and prompt stoppage of the drug.

CASE REPORTS

CASE 1

A 40-year-old female was presented with a history of pain on right upper limb for past one year. She had the complaints of pain on right half of the body. She was admitted in the same hospital for similar illness before one year. She was on tizanidine tablet for the past years. General examination revealed she was anemic and her systemic examination showed no abnormalities. Her local examination showed tenderness in right hand, no swelling, ROM normal. On the first day of admission her blood pressure level was 110/80 mm hg, pulse rate 78 beats per minute, respiratory rate 22 breaths per minute and temperature was normal. Laboratory investigation showed: WBC 10.6 x 109/L (4-10× 10 9/L %), Lynphocytes 24% (20-40 %), Monocytes 7.45% (3-15%),Granulocytes 68.6 %(50-70%), Lymphocytes 2.5 (0.8-4.0 x 10 9/L), Monocytes 0.8 (0.1-8.5x 10 9/L), Granulocytes 7.3 (2.0-7.0x 10 9/L), RBC 3.8× 10 12/L (3.5-5.5 × 10 12/L), Hemoglobin 9.7g/dl (12-16 g/dl), Platelet 317× 10 9/L (100-300 × 10 9/L), ESR 38 mm/hr (up to 20 mm/hr), MCV 84.6 fl (80-100 fl), MCH 25.5 Pg (27-34 Pg), MCHC 30.2 g/dl (32-36g/dl), HCT 32.1 % (37-54%) RBS 105 mg/dl (80-120 mg/dl), Blood Urea 23.8mg/dl (10-50 mg/dl) and S. Creatinine 0.9 mg/dl (0.7-1.4 mg/dl). Urine analysis reported pale yellow, acidic urine. Albumin and sugar was absent. Pus cells were 2-3/HPF; epithelial cells were 0-1 cells/HPF. Only herHb, MCH, MCHC, HCT, ESR levels shows abnormalities it denoted that patient was anemic and all other tests were with in normal limits. She took Pregaba M (pregabalin. methylcobalamin) for anemia.

On the first day she started with intravenous tramadol 50mg thrice a day for pain, then she experienced three episodes of vomiting for which she was given intravenous ondansetron4mg. Second day the same drug was given that also developed two episodes of vomiting. Thus the drug was completely stopped and started intravenous diclofenac. She stopped vomiting and was discharged on the sixth day with the caution not to use tramadol.

CASE 2

Mrs. 48-year-old female with no significant family history was presented with pain in the both the knees for six months, difficulty in walking and swelling. She had undergone ovarian cystectomy before 7 years and also attained menopause. Her general examination and systemic examination was normal. Local examination of both knee revealed tenderness and swelling and ROM normal. Laboratory investigation showed: WBC 5.4 × 109/L (4-10× 10 9/L %), Lynphocytes 34.5% (20-40 %), Monocytes 4.4% (3-15%),Granulocytes 64.1% (50-70%) ,RBC 4.08 × 10 12/L (3.5-5.5 × 10 12/L), Hemoglobin 9.7g/dl (12-16 g/dl), Platelet 266×10 9/L (100-300 × 10 9/L), ESR 18 mm/h (up to 20 mm/hr), MCV 81.8 fl (80-100 fl), MCH 23.7Pg (27-34 Pg), MCHC 29.1 g/dl (32-36 g/dl), HCT 33.3% (37-54%) RBS 118 mg/dl (80-120 mg/dl), Blood Urea 34 mg/dl (10-50 mg/dl) and S. Creatinine 0.8 mg/dl (0.7-1.4 mg/dl), S. Uric acid 4.2mgdl (2.5-7). Urine analysis reported pale yellow, acidic urine. Albumin and sugar was absent. Pus cells were 2-3/HPF; epithelial cells 1-3/HPF. From the lab values, examined that she was anemic and her Hb, MCHC, MCH, HCT levels showed variation from the normal range. She was treated with ferrous sulphate and vitamin B complex tablets.

Tramadol 50mg was administered to the patient for pain thrice a day along with ondansetron, both intravenously. On the first day she experienced continuous vomiting. She had the same experience on second day even when tramadol was given along with ondansetron. She continued to show the same reaction and thus the drug tramadol was discontinued. Patient felt normal after sometime. Vomiting was treated with intravenous

ondansetron and for pain alternative analgesic diclofenac was given intravenously.

DISCUSSION

Tramadol is a synthetic codeine analog used as an analgesic that is a weak morphine opioid receptor agonist. Part of its analgesic effect is produced by inhibition of uptake of norepinephrine and serotonin. In the treatment of mild to moderate pain, tramadol is as effective as morphine or meperidine.[3]

Although the mode of tramadol-induced nausea/vomiting is unclear, opioid receptors on the chemoreceptor trigger zone in the human brain can bind opioids to cause nausea/vomiting. A major pathway of tramadol metabolism is demethylation to O-desmethyltramadol by cytochrome P450 enzyme 2D6 (CYP2D6) and O-desmethyltramadol has an orders of magnitude higher affinity for theμ-opioid receptor (OPRMI) than other metabolites.[4]

Some report showed: Incidence of vomiting due to tramadol: The most frequent adverse gastrointestinal effects of tramadol are nausea (10% to 20%) and vomiting (3% to 9%). Vomiting has necessitated withdrawal of therapy in some patients. Nausea occurred in 24, 34 and 40% of patients and vomiting occurred in 9, 13 and 17% of patients receiving the drug for up to 7, 30 and 90 days, respectively. Nausea and vomiting may occur more frequently with higher doses and following rapid intravenous injection. Clinical trials involving tramadol administration for up to 90 days in 550 patients, reported nausea in 24% to 40%, constipation in 24% to 46% and vomiting in 9% to 17% of patients.[2]

Normal dose is 50-100mg oral/ i.m / slow i.v given 4-6 hourly. Tramadol even in a single dose can cause severe adverse reaction. In one patient tramadol had caused ataxia, dilatation of pupil, tremulousness and dysphasia lasting for hours and disappearing after discontinuing therapy.[5] The most common gastrointestinal symptoms reported were with extended release tab and parenteral preparation of tramadol was nausea, vomiting, bleeding and post-operative haemorrhage.[6] In both the inpatient and outpatient setting, a patient's new or worsening symptom may be the first sign of an ADR. In a community pharmacy, patients often seek advice from the pharmacist to treat various symptoms at home. According to WHO an adverse drug reaction (ADR) is an unwanted, undesirable effect of a medication that occurs during usual clinical use. ADRs occur almost daily in health care institutions and can adversely affect a patient's quality of life, often causing considerable amount of morbidity and mortality and cost burden to much attention has been given to identifying and reporting the patient populations most at risk, the drugs most commonly responsible and the potential causes of ADRs. An increase in the number of drugs on the market, an aging population and an upward trend in polypharmacy are contributing factors to the prevalence of ADRs worldwide.[7]

The most frequently documented adverse effects in clinical and post-marketing surveillance studies, ie, nausea/vomiting, dizziness, drowsiness, tiredness, sweating and dry mouth, are noted very infrequently in spontaneous reports, since in medical practice these side effects are usually known and described in the product information. Tramadol stimulate the action by affecting opioid receptors and although the mechanism of action is pretty similar to morphine and other opioids, tramadol also inhibits the uptake of serotonin and norepinephrine (neurochemicals in the brain) which are in part responsible for superior therapeutic efficacy when compared to morphine and codeine side effects observed with tramadol include nausea, vomiting, dizziness, dry mouth and sedation.[8] Due to its receptor mediated effects, the use of tramadol carries risk of gastric complications. Many study reported if some individuals report constipation within the first few weeks (or months) after starting oral therapy with tramadol. However, with prolonged use, constipation and other gastric issues like nausea and vomiting are unsatisfactory.[9] Apart from vomiting there are a few reports of seizure induced by tramadol at therapeutic dose. Intravenously dose of Tramadol can evoke seizure with agitation or even status epilepticus. Tramadol should be cautiously prescribed especially for patients with history of epilepsy, addiction and old ages.[10]

CONCLUSION

Tramadol shows many adverse drug reactions which are mostly related to gastrointestinal system. Even a single dose can cause severe adverse reaction such as continuous vomiting causing severe dehydration of the body. Thus prior to prescribing tramadol to a patient gastrointestinal effects and also other potential side effects have to be taken into consideration and closely monitored.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Raffa RB, Friderichs E, Reimann W, Shank RP, Codd EE, Vaught JL. Opioid and nonopioid components independently contribute to the mechanism of action of tramadol, an 'atypical' opioid analgesic. J Pharmacol Exp Ther. 1992;260(1):275-85.
2. Palaian S, Mishra, Chhetri AK, Akam K. Vomiting due to tramadol: a short case report from the regional pharmacovigilance centre, Western Nepal. Journal of Clinical and Diagnostic Research. 2008;2:707-711.
3. Fardan Q, Afroz A, Fariha F, Sukhpreet S, Karan S, Rajni KR. Case report: Tramadol induced Thrombocytopenia. EJPMR. 2016;3(4):261-2.
4. Eunjin K, Chan BC, Changwon K, Sang CB. Adverse events in analgesic treatment with tramadol associated with CYP2D6 extensive-metaboliser and OPRM1 high-expression variants. BMJ. 2009;69(10).
5. Aruna B, Theophilus VB. Case report: acute distention of abdomen secondary to tramadol. Pharmacology. 2010;1:7-8.
6. Radbruch L, Grond S, Lehmann KA. A risk-benefit assessment of tramadol in management of pain. Drug Saf. 1996;15(1):8-29.
7. WHO Definition of ADR'.N.p. Web.http://www.who.int/medicines/areas/quality-safety/safety-efficacy/definitions.pdf 8 Mar. 2016
8. Cossmann M, Kohnen C, Langford R, McCartney C. Tolerance and safety oftramadoluse. Results of international studies and data from drug surveillance. Drugs 1997;3:50.
9. Lee CR, McTavish D, Sorkin EM. Tramadol A preliminary review of its pharmacodynamic and pharmacokinetic properties and therapeutic potential in acute and chronic paMin states. Drugs. 1993;46(2):313.
10. Mehrpour M. Intravenous tramadol-induced seizure: two case reports. Int J Pharm Tech. 2005;4(2):146-7.