

Nursing Mistake During Drug Administration Endanger Patient Life

Reham R Elkhateeb* and Ahmad E Mahran

Department of Obstetrics and Gynecology, Faculty of Medicine, Minia University, Egypt

*Corresponding Author: Reham R Elkhateeb, Department of Obstetrics and Gynecology, Faculty of Medicine, Minia University, Egypt.

Received: December 07, 2016; Published: January 27, 2017

Abstract

Objective: Identifying effect of iatrogenic mistake of nurse during drug administration which can be fatal.

Patients and methods: Case report of postoperative young healthy female received neostigmine for treatment of refractory postoperative paralytic ileus by wrong method that endanger patient's life.

Results: The rapid IV administration of neostigmine had led to cardiac arrest which was treated in the ICU and patient recovered.

Conclusion: Medication errors from nursing mistakes continue to cause serious patient harm resulting from lack of supervision, accurate documentation and safety practices.

Keywords: Neostigmine; Postoperative Ileus; Wrong Administration; Fatal Error

Introduction

Postoperative ileus (POI) is defined as the impairment of gastrointestinal (GI) motility after intra-abdominal or non-abdominal surgery. It is characterized by bowel distention, lack of bowel sounds, accumulation of GI gas and fluid, and delayed passage of flatus and stool [1].

Neostigmine is a parasympathomimetic agent that reversibly inhibits acetylcholine hydrolysis by competing with acetylcholinesterase at sites where cholinergic transmission occurs. It exerts its effect through two mechanisms: increasing the amount of available acetylcholine and indirectly stimulating nicotinic and muscarinic receptors, when given to patient it stimulate both skeletal and smooth muscle contraction [2-4].

Neostigmine administration is a safe and effective option for patients with postoperative ileus who failed to respond to conservative management [5]. The effectiveness of neostigmine for treatment of postoperative ileus was evaluated in two systematic reviews [6,7].

Case Description

A 21-year-old woman, P1+0 (previous CS due to cephalo-pelvic disproportion) with a 37-wk singleton pregnancy presented to the hospital emergency department due to labour pains, which started 6 hours prior to arrival. The patient's initial vital signs were: BP=100/70, T=37, HR=94/min, RR=18/min. Fetal heart rate was 140/min and local examination CX: 4cm dilated, effaced 60% membrane intact, cephalic, station -3 and pelvis contracted inlet. Emergency ultrasound revealed no abnormalities. The patient's serum hemoglobin was 10 mg/dl. The patient was prepared for emergency CS. The anesthesiologist decided to administer spinal anesthesia, lower segment caesarean section (LSCS) was done and surgical procedure passed uneventfully. Outcome was male baby weighing... With Apgar score 8/10. In the second postoperative day, patient's vital signs were stable and she complained of mild abdominal distension, Abdominal examination was normal with sluggish intestinal sound. A laxative agent was prescribed. In the third postoperative day, patient's vital signs were normal but was still complaining of abdominal distension. Examination revealed mild tenderness related to gaseous distension with no rigidity or guarding. Serum electrolyte levels were normal. Abdominal ultrasound examination detected colonic gaseous distension.

Consequently, the senior obstetrician in charge prescribed neostigmine 1ml (2.5mg) slow IV infusion. Shortly after drug administration, patient suddenly developed cyanosis and developed cardiac arrest. Patient was immediately transferred to ICU. Endotracheal intubation and cardio-pulmonary resuscitation (CPR) were performed. Fortunately, patient recovered after CPR. After half hour patient regained her consciousness and was extubated but kept in ICU for follow-up for 24hour.

Risk management team investigated the case. No medication administration was recorded in patient's file. Reviewing patient history revealed no medical disorder explaining the cardiac arrest. History taking from patient's relatives revealed that neostigmine was administered by direct i.v. injection rather than slow i.v. infusion. We concluded that the situation was a side effect of rapid I.V. injection of neostigmine.

Discussion

Medication errors may occur in all settings. Most of the common types of errors result in patient's death affected by the wrong dose (40.9%), the wrong drug (16 %), or the wrong route of administration (9.5%) [8]. The causes of these deaths were categorized as oral and written miscommunication, drug name confusion (e.g., names that look or sound alike), similar or misleading container labeling, performance or knowledge deficits, and inappropriate packaging or device design [9].

Both paralytic ileus and colonic pseudo obstruction are common after pelvic surgery this may be explained by the injury of the sacral parasympathetic innervation roots of the right colon. These nervous roots are proximate to the uterus, cervix and the broad ligament and can be injured during pelvic surgery or after caesarian section, leading to the atony of the right colon [10].

Neostigmine, are considered to be the treatment of reference after 24 hours of symptomatic treatment. Neostigmine is used in IV route, with slow administration at a dose of 2 to 2.5 mg. However, in 10% of the cases, side effects are observed. These can be minor such as hypersalivation, abdominal cramp, and nausea and vomiting. The side effects of neostigmine can also be major such as bronchoconstriction, bradycardia and arterial hypotension imposing close monitoring of heart beat rate, blood pressure and proximity of atropine. . Contraindications of neostigmine are dominated by mechanical intestinal obstruction, colic perforation, mechanical urinary obstruction, asthma, active bronchospasm and bradycardia [11].

The Institute of Medicine's (IOM) stated that medication-related errors (a subset of medical error) were a significant cause of morbidity and mortality. They accounted "for one out of every 131 outpatient deaths, and one out of 854 inpatient deaths [12].

Factors that lead to drug errors are heavy workloads, a component of nurse staffing, lack of training and supervision. In one survey of nurses in 11 hospitals, both pediatric and adult nurses reported staffing ratios and the number of medications being administered as being the major reasons why medication errors occur [13].

Bibliography

1. Livingston EH and Passaro EP. "Postoperative ileus". *Digestive Diseases and Sciences* 35.1 (1990): 121-132.
2. De Giorgio R and Knowles CH. "Acute colonic pseudo- obstruction". *British Journal of Surgery* 96.3 (2009): 229-239.
3. Saunders MD. "Acute colonic pseudo-obstruction". *Best Practice and Research Clinical Gastroenterology* 21.4 (2007): 671-687.
4. Nair VP and Hunter JM. "Anticholinesterases and anticholinergic drugs". *Continuing Education in Anaesthesia, Critical Care and Pain* 4.5 (2004): 164-168.
5. Kehlet H and Holte K. "Review of postoperative ileus". *American Journal of Surgery* 182.5A (2001): 3S-10S.
6. Raul Guillermo Lopez Valle and Francisco Lopez Godoy. "Neostigmine for acute colonic pseudo-obstruction: A meta-analysis". *Annals of Medicine and Surgery (London)* 3.3 (2014): 60-64.

7. Elsner JL, *et al.* "Intravenous neostigmine for postoperative acute colonic pseudo- obstruction". *Annals of Pharmacotherapy* 46.3 (2012): 430-435.
8. Wu AW, *et al.* "ICU incident reporting systems". *Journal of Critical Care* 17.2 (2002): 86-94.
9. Institute of Medicine. "To err is human: building a safer health system". Washington, DC: National Academy Press (1999).
10. Fatnassi R, *et al.* "Ogilvie's Syndrome: A Caesarean Section Complication (A Two Cases Report and Review of the Literature) Case Report". *EC Gynaecology* 1.1 (2015): 35-40.
11. Mainguy Le Gallou C, *et al.* "Ogilvie's syndrome following cesarean section: Just think! Report of two cases and review of the literature". *Journal de Gynécologie Obstétrique et Biologie de la Reproduction* 40.6 (2011): 557-563.
12. Ronda G Hughes and Mary A Blegen. "Patient Safety and Quality: An Evidence-Based Handbook for NurseTop of Form". Medication Administration Safety.
13. Stratton KM, *et al.* "Reporting of medication errors by pediatric nurses". *Journal of Pediatric Nursing* 19.6 (2004): 385-392.

Volume 4 Issue 1 January 2017

© All rights reserved by Reham R Elkhateeb and Ahmad E Mahran.