Abstract: Among all fields of healthcare about 45% of medical errors occur in the operating theatre. Wrong site procedures remain one of the most preventable medical errors. Unintentional wrong-sided peripheral nerve block is relatively a rare event in anesthesia care. However, the incidence is unknown but each time wrong-sided block occurs it represents a mistake and a potential for harm. The surgical safety checklist was established in 2008 by the world Health organization (WHO) as a part of the “Safe surgery save Lives” initiative. We report in this article a case of wrong sided continuous popliteal sciatic nerve block and discuss the role of the WHO’s checklist in preventing wrong side peripheral nerve block and surgery.

Key words: Regional anesthesia; side error; World Health Organization; Checklist; sciatic nerve block; popliteal fossa.

INTRODUCTION

Surprisingly few peer-reviewed papers on the subject of wrong-sided peripheral nerve blocks appear in the electronically indexed medical literature. Use of the key words “wrong side regional anesthesia,” “wrong sided peripheral nerve blocks,” “incorrect side nerve blocks,” “erroneous side regional anesthesia,” in Pub Med yielded less than 10 reports. Nevertheless, case reports are the only way to report wrong side peripheral nerve blocks. Despite the fact that incident reporting is a key tool in improving patient’s safety (like in high risk industry, rail aviation and others), obviously most medical journals are reducing the space attributed to case reports to support the more prestigious prospective randomized studies.

DONALDSON et al. (1) estimate that the degree of error occurs in 5-15% of all hospital admission worldwide. Among all fields of healthcare about 45% of medical errors occur in the operating theatre (2). While many of these errors are minor with no direct impact on the patients, it would seem reasonable to ask if there is any place for error in patient care in the 21st century. Nevertheless, some of these errors may lead to medico-legal claims although no harm is caused to the patient. Recently in the 2010 annual report of the MACSF the leading French medical insurance company (3) a patient claimed compensation for wrong sided sciatic nerve block despite no damage happened. Conversion to general anesthesia (GA) was the only reason for claim (3). High-risk industries, such as aviation, nuclear power and Formula one racing have clearly defined safety strategies and procedures. With increasing public expectations and media pressure, it is clear that much progress is needed to achieve similar safety standards in surgery, anesthesia and healthcare. Many of commercial airlines have admirable safety records. Much of this is the result of how the aviation industry reports and manages minor and major errors and adverse events.

Nevertheless, the World Health Organization (WHO) checklist remains a considerable progress for safety standards in surgery.

The surgical safety checklist was established in 2008 by the world Health organization as a part of the “Safe surgery save Lives” initiative (4). A series of items are checked at patient’s arrival, before anesthesia induction and before and after surgical procedure.

Unintentional wrong-sided peripheral nerve block is a relatively rare event. However, it is most probably under reported in the literature. each time a side error occurs it represents a mistake and a potential for harm (5). Complications such as nerve damage, local and systemic local anesthetic’s toxicity, and even progression to wrong-sided surgery are inherent risks.

We report a case of near missed wrong site continuous sciatic nerve block at the popliteal fossa. We analyze the case, and discuss the role of the WHO’s checklist in preventing side errors.

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CASE REPORT

A 60-year-old woman, American Society of anesthesiologists’ physical status II. Past history included hypertension, treated with bisoprolol, hydrochlorothiazide and moxonidine. The patient suffered from hallux valgus of both feet. The right foot was in first programmed for surgical repair. Preoperative evaluation was conducted during preanaesthesia consultation. Consent was obtained for general anesthesia (GA) with ultrasound guided continuous popliteal sciatic nerve block (CPSNB) for postoperative analgesia. On day of surgery the patient was admitted to the preanaesthesia area for catheter placement, before induction of GA. As per hospital protocol the operative extremity was prepared by the ward nurse, with alcoholic povidone iodine solution, and both extremities were dressed with a blue dressing. An intravenous line was inserted, and standard monitoring was applied. We proceeded to “before induction of anesthesia WHO’s checklist”. Once this checklist was controlled the attending anesthesiologist was called for help for a difficult intubation in the nearby operation room. Before leaving the pre-anesthesia area he asked the attending nurse to place the ultrasound machine, to prepare a table and to inject 2 mg of midazolam to the patient. On his return the ultrasound machine was placed to the right of the patient and the table to her left. Nevertheless before starting the catheter insertion he asked the patient to confirm the limb to be operated and she confirmed the left foot. As he was short of time he proceeded immediately to site disinfection and inserted the catheter under direct ultrasound control. He injected 10 ml of levobupivacaine 5 mg/ml through the needle and 10 ml through the catheter. Local anesthetic spread was non-circumferential and catheter was correctly inserted after ultrasound control. Before transfer to the operation room, we proceeded to cold test and motor evaluation (7), which were positive and confirmed that the left foot was completely anesthetized. The patient was then transferred to the operation theatre and the attending anesthesiologist proceeded to GA. The left limb was prepared for surgery, before incision the team proceeded to the time-out step of the WHO’s checklist. At this moment the error was identified. Nevertheless, this caused some tension among the healthcare team. Despite this tension the team proceeded to a second preparation of the correct limb and surgery was uneventful. On recovery the patient suffered from pain. The attending anesthesiologist proceeded to a new ultrasound guided inser-

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tion of a CPSNB in the recovery room. Catheter and local anesthetic spread were controlled (7) and the procedure was successful and uneventful. After surgery the attending anesthesiologist explained in details the course of events to the patient. As the patient was satisfied from her pain control and there was no injury or complication, no complaint was recorded.

DISCUSSION

Human error in medicine, and the adverse events that may follow, are problems of imperfect human behavior leading to organizational accidents. However, in exploring the etiology of organizational accidents, it is important to look beyond the immediate or proximate causes of the event and to search for “latent errors”.

Wrong site procedures remain one of the most preventable medical errors. Data from the joint commission sentinel event database shows that the 4074 events reviewed from 1995 to 2006 included 532 wrong site surgeries (8). Unintentional wrong-sided peripheral nerve block is relatively a rare event in anesthesia care. However, the incidence is unknown but each time wrong-sided block occurs it represents a mistake and a potential for harm. Complications such as nerve damage, local and systemic local anesthetic’s toxicity (9), and even progression to wrong sided surgery are inherent risks (5). We believe that site–errors during peripheral nerve blockade are more frequent than what is reported in the literature.

In this case report we intended to draw attention to the potential wrong site error during peripheral nerve blockade. Our Medline search highlighted two reports (10, 11). Both cases were accompanied with editorials that stressed the importance of this issue (5, 12). However no other report focused on the role of the WHO’s checklist in preventing wrong site surgery or peripheral nerve block. We would like to highlight that the patient confirmed the wrong site before the nerve block. This is due in part to sedation but also due to confusion, because of both feet involvement and unwillingness to interfere in the procedure. The major contributing factors of wrong-site surgery are resumed in the joint commission on accreditation of healthcare organizations (JCAHO) summit report (13). This involves time pressure, room changes, communication errors, distractions, missing information, operating room hierarchy, orientation/training, and we could add failure to follow or
gaps in the recently introduced WHO’s checklist. The WHO’s checklist was introduced recently in France by the Haute Autorité de Santé (HAS) (14). The aim of the checklist is to reduce morbidity and mortality by checking a series of items. Surgery site error is one of these items (14). However, despite that the checklist allowed us to avoid wrong-site surgery, we identified a defect that can be prevented. Distraction during the sign-in step of the WHO’s checklist, may lead to error. Accordingly, we suggest that in case of distraction after fulfilling this step and before proceeding to peripheral nerve blockade the sign-in procedure should be repeated. The second identified problem in this checklist is the presence of two consecutive anesthesia and/or analgesia procedures, especially catheter insertion for postoperative analgesia and GA. We also suggest that the sign-in step should be fulfilled twice, one time before catheter insertion in the pre-anesthesia area, and a second time before GA induction in the operation theatre. We are aware that such measures will make the procedure heavier and could be time consuming for the whole team. Nevertheless, we believe that elimination of mistakes requires this effort.

Another issue is that peripheral nerve block errors could still happen despite surgical site marking (15). One possible reason for this error is that nerve block site is different than the surgical site. This is illustrated in case of knee replacement surgery, where surgical mark might be on the calf and the femoral nerve block in the groin. Another source of error could be sciatric nerve block at the popliteal fossa performed in the prone position that could mask the surgical marking (15). However this anesthesia site marking is a matter of debate and should not create confusion with surgical site marking and further potential errors (15).

In conclusion it seems important that in case of distraction the sign-in step should be repeated before each procedure. Furthermore peripheral nerve block site marking could be a supplementary safety measure against nerve blocks site errors. Finally the way is still long to get zero errors.

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