

## Research Article

# Assessment of the Care of Acute Pain at the Trauma Center of Ouagadougou

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**Abstract**

**Introduction:** Pain is a frequent reason for patients visit in trauma centers, but its care remains insufficient for many reasons. The goal of this study was to assess the care of pain at the trauma center of the Yalgado Ouedraogo University hospital in Ouagadougou.

**Methods:** Observational study concerning the care of pain for patients admitted in the trauma center during the study timeframe.

**Results:** In total, pain was evaluated in 174 patients during the study timeframe. The patients' sex ratio was 2 with a mean age of 31.3 +/-11 years. The mean time before the first clinical exam was 9 minutes. The main traumatic injuries were cutaneous wounds (39.1%), bone fractures (33.3%), and muscular contusions (11.5%). The pain was assessed for 54% of patients. The assessment involved non systematic questioning in 91.1% of cases. An analgesic treatment was administered to 80.5% of patients. This treatment was exclusively made of medications containing an association of acetaminophen and nefopam for 36.2% of patients. Morphine and peripheral nerves blockers have never been used. The pain was relieved in 67.4% of patients after the treatment and 58.6% of the patients were entirely satisfied with the care at the discharge time from the trauma center.

**Conclusion:** Pain management at the trauma center remains insufficient. The training of the staff and the use of validated therapeutic protocols would improve patients comfort and the quality of care.

**INTRODUCTION**

Acute pain is a main issue in the trauma wards of emergency departments. Indeed pain is closely related to trauma by the damage of body tissues and the activation of nociceptors. Pain is the most of the time experienced by the complaint of patients. The prevalence of pain in trauma center has been estimated between 75% and 91% [1-3]. It has been estimated that around 40% of patients suffering from pain in trauma in Emergency Room do not receive analgesics [3]. Likewise, the insufficiency of pain treatment is the reason of patients' dissatisfaction at the discharge from the Emergency Room [3]. Though, the correct care for pain eases the process of injuries assessment, for instance imaging studies, it allows a quick mobilization of the patient and shorten the hospital length of stay [5]. Additionally, the correct care for pain allows a good relationship between the patient and

the care providers [6,7]. Conversely to post-surgical pain which treatment is recognized mandatory and well codified, pain in Emergency Department is underestimated, under-assessed and then insufficiently treated [2,8,9,10]. Vital distresses are very often prioritized.

The goal of this study was to assess pain management in the trauma center of Ouagadougou.

**MATERIAL AND METHODS****Study and setting**

It is an observational study conducted from February 22<sup>nd</sup> to March 22<sup>nd</sup> 2012 in the trauma center of the Yalgado Ouedraogo University Hospital (CHUYO). The CHUYO is one of the national adult trauma referral centers in Burkina Faso. The emergency

department (ED) of this trauma center receives all patients with multiple trauma. Patient with isolated abdominal trauma are cared for in a different ward of the hospital.

Patients were admitted on a permanent basis by finishing-medical students (interns and fellows) under direct supervision of junior surgeons (physicians specializing in surgery). Seniors surgeons are on call and requested when necessary.

## Patients and methods

All patients admitted in the ED for trauma were eligible to participate in the study. Patients with confusion, acute alcoholic intoxication signs, immediate vital distress, chronic pain, a language barrier or care opposition were not included in the study. Only patients giving their consent were finally included and analyzed.

The survey took place every day of the week from 8.00 a.m to 8.00 p.m of the study month. An investigator, not involved in the patients' care, screened all eligible patients. In the ED, when patients were eligible and gave their informed consent, the investigator collected socio-demographic data and then followed the care from the admission to the patient's discharge. The information on pain assessment and treatment were completed using the patient file (medical prescriptions, nursing and surveillance files). The data recorded on the survey sheets were: patient medical history, circumstance of trauma, mean of transportation to the ED, type of injuries, time sequence (arrival, admission, first pain evaluation, first pain treatment, discharge from ED), the method of pain evaluation used (verbal scale, numeric scale, analogic scale or basic questioning). The strategy of pain treatment was also recorded: pharmacological treatment (drugs used, dose, time of administration) and non pharmacological (circular cast, pose of splint, bandaging, use of sling and traction). The outcome and type of discharge from ED (hospital, death, transfer, home) were also noted. At the end of the stay in the ED, a questionnaire was submitted to each patient in order to assess their satisfaction regarding the treatment received: listing of painful procedures, assessing time to pain relief (no, short, medium, long) and giving a global level of satisfaction on pain treatment in ED.

## STATISTICAL ANALYSIS

Nominal variables were expressed in percent numbers, and continuous variables were expressed in mean and student deviation. The Chi-square test was used to compare frequencies with a chosen significance level of 0.05. The data were analyzed using Epi Info 6.0 and SPSS 16.

## RESULTS

Eight hundred and forty patients were admitted in the trauma center during the study period. Among those patients, 174 (21%) were included in the study. The mean age of the patients included in the study was  $31.3 \pm 11.6$  years with extreme values of 15 and 70. The most represented range of age was the 26-35 year-olds (35.6%). Males were predominant gender: 66.7 % (sex ratio=2). The main injuries at patients' admission are presented in Table 1. Most of patients (74.1%) were brought to the trauma center by the firefighter rescuers. The mean wait time to the first

medical examination was 9 minutes with extreme values of 1 to 60 minutes. The pain was intense in all the patients assessed by the mean of the verbal scale. For 70 patients, the treatment was administered without a preliminary assessment of the pain. For the pharmacological treatment, the association of acetaminophen (1g) and nefopam (20mg) every 6 hours was used in all patients. Morphine and peripheral blockers have never been used. The mean waiting time in the trauma center before the analgesic infusion was  $77 \pm 5$  minutes and the extremes were 5 and 285 minutes. Around half of the patients were relieved by the analgesic treatment (Figure 1). Pain was evaluated for by the staff in 94 patients (54%) at admission (Table 2). In 91.5%, the pain assessment method consisted in non-systematic questioning. Details concerning pain assessment and treatment in our cohort are shown in Table 2.

The timeframe in achieving analgesia was judged as short by the patients in 67.4% of the cases. Pain was reassessed after treatment in 20 patients (14.3%) over the total of 140 patients who received the analgesic treatment. The method used for this second evaluation was non-systematic questioning in 16 patients (80%) or the verbal scale (20%). A pain caused or worsened by any non pharmacological treatment was reported by 52 (30%) patients. The procedure that caused more often pain was the mobilization of the limbs during the clinical examination. Table 3 summarizes the main painful maneuvers.

Twelve patients (6.9%) were warned of the possibility of pain worsening before a potential painful procedure. Over these twelve patients, three of them stated that they got analgesic treatment after the painful procedure but none received any painkiller before the procedure. More than half of the patients (97) were discharged with an analgesic prescription. The

**Table 1:** Patients' lesions distribution.

Type of injury	Number of patients (n)	Percent (%)
Cutaneous wounds	68	39.1
Bone fractures	58	33.3
Muscle contusions	20	11.5
Dislocation	6	3.4
Sprain	14	8
Other*	8	4.5
<b>Total</b>	<b>174</b>	<b>100</b>

Other\*: spinal trauma, retroperitoneal hematoma.

**Table 2:** Pain assessment and treatment: n (%).

Method of pain assessment	Pain assessment	No assessment of pain	Total
- Verbal scale	8 (4.6)		<b>94 (54)</b>
- Non systematic questioning	86 (49.4)		
<b>Analgesic treatment</b>			<b>140 (80.5)</b>
- Pharmacological : 63 (36.2)	70 (40.2)	70 (40.3)	
- Non pharmacological : 21 (21.1)			
- Both : 56 (32.2)			
<b>No analgesic treatment</b>	24 (13.8)	10 (5.7)	<b>34 (19.5)</b>
<b>Total</b>	<b>94 (54)</b>	<b>80 (46)</b>	<b>174 (100)</b>

association of acetaminophen and diclofenac per os was the most frequent prescription (30.9% of all prescriptions). The ways patients exited from the trauma center are summarized in Table 4. In total, the majority of the patients were entirely satisfied with the care of their pain (Figure 2).

## DISCUSSION

We conducted this month-long study with the goal of making an assessment of the care of acute pain in the trauma center of the CHUYO which is a reference center for the treatment of trauma pathologies in Burkina Faso. The study yielded that pain was under assessed (66% of them did not have pain evaluation) and insufficiently treated (19.5% of them did not have pain treatment) in the trauma center.

The treatment of acute pain should always starts with an assessment. Indeed identifying the level of pain is necessary to target the adequate analgesic treatment [11]. The lack or the under evaluation of pain are the main causes of oligoanalgesia in the Emergency Department [12]. Berthier F and al noticed that 42% of patients with trauma did not have any assessment of their pain in the ED of a trauma center. In our study, the pain was not systematically assessed either since only half of the trauma patients admitted in the trauma center had a pain assessment. Additionally, the tools to assess the pain in our study were not uniform and not always valid because they could not allow a proper scaling of the pain [11,13].

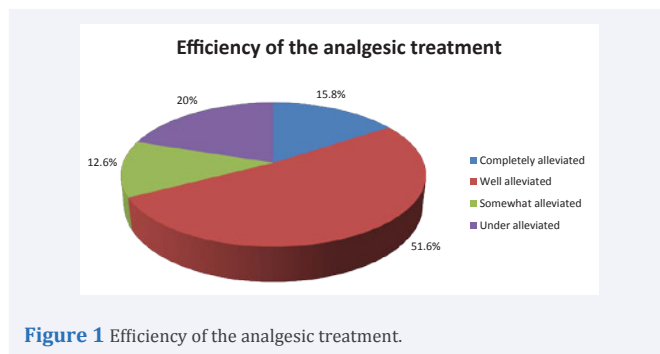
When the Simple Verbal Scale was used it allowed the identification of an intense pain in assessed patients. A systematic assessment of the pain with a validated scale would have found a higher number of patient suffering from pain. The lack of prehospital medical care could be the reason of a high prevalence of pain in the trauma center. Indeed, the transportation of patients by a mobile emergency medical unit was noticed to be a predictive factor of obtaining analgesia in patients before their arrival at the trauma center [6]. Prehospital transportation of patients towards hospital is done by firefighters in Burkina Faso. They only perform a contention using splints or other methods but they do not administer analgesics. In spite of the low rate of pain assessment, an analgesic treatment was done in 80.4% of

**Table 3:** Distribution of painful maneuvers as reported by patients.

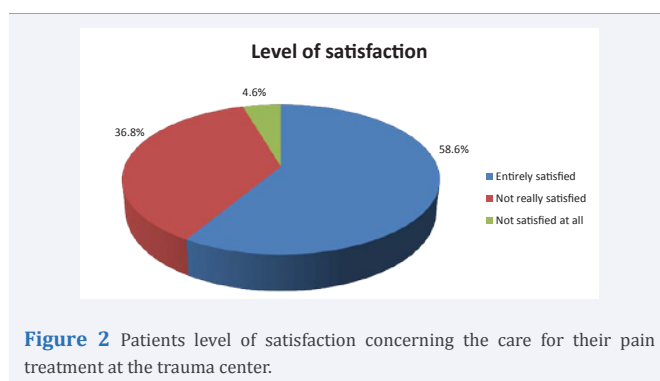
Procedure	Number of patients (n)	Proportion (%)
Clinical exam	16	30.8
Imaging studies	12	23.1
Nursing care	12	23.1
Stretcher carrying	2	3.8
Other procedures	10	19.2

**Tableau 4:** Distribution of patients according to the exit mode.

Exit mode	Number of patients (n)	Percent (%)
Discharge home	143	82.2
Observation	15	8.6
Discharge against medical advice	10	5.7
Hospitalization	6	3.4
<b>Total</b>	<b>174</b>	<b>100</b>



**Figure 1** Efficiency of the analgesic treatment.



**Figure 2** Patients level of satisfaction concerning the care for their pain treatment at the trauma center.

patients. However there was a long timeframe before the start of the treatment (77 +/- 5 minutes). In our hospital, the lack of prepaid treatment system and the non-availability of analgesics in emergency could explain the long waiting time. No matter what the level of pain, the molecules used for the pain treatment was the same for all patients. The medications were all from the level I of the World Health Organization (WHO) painkillers classification. This class of medications is designed to treat pain from low to moderate intensity [14]. However, pain killers should be used taking into account the intensity of the pain and the potential contraindications [15]. All our patients whom have their pain assessed by the Simple verbal Scale had an intense pain (18%). Morphine or locoregional echo-guided analgesia was however indicated in those patients [16]. The lack of morphine usage and peripheral nerves blockers stems from many factors: the non availability of morphine out of surgery theaters and the lack of training of Emergency Room personnel to the use of morphine and the lack of material and knowledge to perform locoregional anesthesia.

At the end of their treatment in the trauma center, the majority of patients (82.2%) left the hospital and went directly home. More than half of them (55.5%) were prescribed an analgesic treatment at the discharge time. This assessment shows a low interest of the care givers for the pain management; the treatment of the causing pathology being the priority. Over all the patients surveyed, only 58.6% stated being satisfied by the care of the pain. This rate is lower than the one of Harel, et al. [5] during an assessment of pain in emergency units of Basse Normandie in France. They found in their study that 88.1% of patients were satisfied of the pain management despite 10% of them having their pain alleviated at discharge time [5].

Our results mirror the quality of the care provided in the trauma center. Indeed, the patients' level of satisfaction concerning the care of their pain in a hospital unit is indicative of the quality of care [17].

Our study was useful in pointing out the lack of communication between care providers and patients. Indeed, 44.3% of patients stated that they did not receive any analgesic during their hospital stay while their medical files showed that only 19.5% of them did not receive an analgesic. These discrepancies picture the lack of informing patients on their treatment and contribute in deteriorating the relationship between the care givers and the patients.

## LIMITATIONS

During our study, we included 21% of all patients admitted in the trauma center at that time. The low inclusion proportion was due to a high rate of exclusion of certain patients because of language barriers. Also, the information gathering only covered 12 hours of the day. Besides these selection biases, the presence of an observer could cause a change in the treating staff behavior.

## CONCLUSION

Acute pain is frequent in the trauma center of the Yalgago Ouedraogo University hospital. As far, pain still lack of systematic assessment and targeted treatment. Almost half of the patients were not satisfied of the care they received. Training the staff and the institution to validated treatment protocols would probably improve patients comfort and the quality of the care

## REFERENCES

- Berben SA, Meijis TH, van Dongen RT, van Vugt AB, Vloet LC, Mintjes-de Groot JJ, et al. Pain prevalence and pain relief in trauma patients in the Accident & Emergency department. *Injury*. 2008; 39: 578-585.
- Chaibou MS, Sani R, Adehossi E, Sanoussi S, Gbetin AG, Gagara M, et al. Prise en charge de la douleur aiguë aux urgences chirurgicales de l'hôpital national Niamey-Niger. *Rev Afr Anesth Med Urg*. 2011; 16: 50-51.
- Hwang U, Richardson LD, Sonuyi TO, Morrison RS. The effect of emergency department crowding on the management of pain in older adults with hip fracture. *J Am Geriatr Soc*. 2006; 54: 270-275.
- Tempelhoff C, Tempelhoff G. La douleur dans les services d'accueil et d'urgence: Etat des lieux, étude multicentrique. *Réan Urg* 1993; 2: 328-30.
- Harel D, Delorme C, Thibon P, Leroux C, Labidi M, Juret C, et al. Enquête sur la prise en charge de la douleur aiguë dans les services d'urgences adultes du réseau régional douleur de Basse-Normandie. *Douleurs* 2005; 6: 131-139.
- Boune V, Concina F, Lecoules N, Olivier M, Lauque D, Ducassé JL. [Physician staffed ambulances are better for patients' analgesia on arrival at the emergency department]. *Ann Fr Anesth Reanim*. 2010; 29: 699-703.
- Haonga B, Makupa J, Muhina R, Nungu K. Pain management among adult patients with fracture of long bones at Muhimbili Orthopaedic institute in Dar es Salam. *Tanzan J Health Res* 2011; 2: 1-8
- Bineau S, Karwowski-Soulie F, Lessenot-Tcherny S, Ginsburg C, Meyniard O, Mendoza B, et al. Douleur aux urgences et satisfaction des patients. *Rev Epidemiol Sante Publique* 2004; 52: 26-29
- Binhas M, Défendini C, Beltramé D, Vinh MP, Marty J. [Patient dissatisfaction with postoperative pain: what are the main reasons?]. *Ann Fr Anesth Reanim*. 2009; 28: 501-504.
- Boune V; groupe d'experts Sfar-SFMU. Sedation and analgesia in emergency structure. Which sedation and/or analgesia for painful treatments? *Ann Fr Anesth Reanim*. 2012; 31: 340-342.
- Beaune S, Ricard-Hibon A, Belpomme V, Marty J. Analgésie en urgence chez l'adulte. *EMC- Médecine d'urgence* 2007; 25-010-G-10
- Berthier F, Le Conte P, Garrec F, Potel G, Baron D. Analyse de la prise en charge de la douleur aiguë dans un service d'accueil et d'urgence. *Réan Urg* 1998; 7: 281-285
- Bijur PE, Latimer CT, Gallagher EJ. Validation of a verbally administered numerical rating scale of acute pain for use in the emergency department. *Acad Emerg Med*. 2003; 10: 390-392.
- Recommandations formalisées d'experts 2010 : Sédation et analgésie en structure d'urgence. *Ann. Fr. Med. Urgence* 2011; 1: 57-71
- Société Française d'Anesthésie Réanimation. Modalités de sédation et/ou analgésie en situation extrahospitalière. Conférence d'experts 1999
- De Buck F, Devroe S, Missant C, Van de Velde M. Regional anesthesia outside the operating room: indications and techniques. *Curr Opin Anaesthesiol*. 2012; 25: 501-507.
- Coquet E, Bouraima A, Ouro Bang'na F, Gabin Y, Benani A. Evaluation de la prise en charge de la douleur au centre hospitalier du Lamentin en Martinique. *Doul analg* 2011; 1: 1-4.

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