

Vol 4 Issue 6 March 2015

ISSN No : 2249-894X

*Monthly Multidisciplinary
Research Journal*

*Review Of
Research Journal*

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RNI MAHMUL/2011/38595

ISSN No.2249-894X

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POISONING BY PARENTAL PQ: CASE REPORT IN A CITY OF AMAZONIA/BRAZIL.

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Abstract:-This study aimed to present a case and propose the major labels nursing diagnoses in intensive care in victim parenteral Paraquat poisoning. We used the descriptive qualitative case study method with retrospective approach in medical records of a patient admitted to the intensive care unit. The data analyzed resulted in 35 nursing diagnoses, hepatorenal involvement on post intoxication day with PQ, and the third day manifestations severe respiratory clinics. Concludes that intoxication with PQ via parenteral cause 100% mortality.

Keywords: Paraquat, Exogenous intoxication, Nursing diagnoses, Pesticides.

INTRODUCTION

Modern-day studies of the International Labour Organization / World Health Organization (ILO / WHO) estimate that between workers from developing countries, pesticides annually cause 70,000 acute and chronic poisoning progressing to death. And at least 7 million non-lethal acute and chronic diseases due to pesticides¹.

Paraquat (PQ) is considered as one of the most specific toxicity agents to the lungs, with digestive absorption, dermal and respiratory². As for hazard classification, this agent is considered extremely toxic. Compared to other pesticides that has a mortality rate of 3.4%¹⁶.

According Melchiorri et al.³ can cause fatal poisoning to humans. Introducing greater mortality rate of 70%^{4,5}, as compared to other pesticides. Inhalation of pesticides leads to any small or poisoning of human beings. The absorption from the contact with the skin or mucous membranes intact is minimal if ingested; it is rapidly absorbed (30% of dose) by the intestine delgado⁴.

According Menezes⁶ Oliveira and the plasma peak occurs minutes to 2 hours after intake of the product, which runs for all tissues of the body, reaching greater concentrations in the lungs and kidneys, tissues where active transport of molecule occurs. Reforçam⁶ although the toxicity of PQ is the cyclical effect of oxide reduction with production of toxic oxygen species. The formed free radical reacts with lipids of the cell membrane, structural proteins and enzymes, besides the DNA molecule.

Poisoning by oral, transdermal, and inhalation can affect all organs, with special affection for lung, liver and kidney. In the presence of high doses can lead to early death, usually caused by pulmonary edema and hemorrhage. With lower doses intake of lung lesions are more gradual, and consist of changes resulting from pulmonary fibrosis. It is in these cases that usually arise renal changes, around 72 hours after ingestion, manifesting itself by acute kidney injury (AKI), and liver damage is also observed with some frequency, manifesting itself by cholestase⁷.

In humans who ingest a significant amount of FP, death usually occurs within two to three weeks as a result of acute renal failure, liver, and especially respiratory failure caused by inflammation and fibrosis pulmonary⁸.

When ingested is highly toxic and can relate the high mortality rate mainly due to the lack of an effective antidote to reverse the clinical picture, and in rural areas is often taken with intent suicidal^{7,9}.

The first fatalities due to acute intoxication by the PQ were accidental, occurred in 1964 and were reported in 1966. The number of cases of accidental poisoning is relatively low compared to the number of suicide attempts. Although the vast majority of fatalities are due to taking the products, there is reference to a small number of cases due to intoxication dermal following the application of liquid solutions concentradas^{7,10,11}.

It has been proposed that tissue damage mechanism is due to the increase in the formation of free radicals and reactive oxygen species, including superoxide (O₂), hydrogen peroxide (H₂O₂) and hydroxyl radical (OH⁻). These species are unstable and readily react with fatty acids, leading to membrane injury, protein and DNA^{12,16}.

The toxicity of PQ in repeated contact with the skin can lead to dermatitis and nail erosion. In the gastrointestinal tract, may occur or pharyngeal ulceration and corrosion, nausea and vomiting, diarrhea, hematemesis, dysphagia, esophageal perforation, pancreatitis, and hepatic necrosis. There may be acute tubular necrosis; the respiratory system, cough, mediastinitis, pneumothorax, hemoptysis, alveolar hemorrhage, edema and pulmonary fibrosis; hypovolemia, shock and arrhythmias; convulsions, coma and edema cerebral¹⁶.

According Pinheiro¹³ and Crugeiras et al⁴, poisoning PQ has a high prevalence of complications in lung function, hepatocellular, renal and central nervous system, and this justifies the move to failure of multiple organs and the mortality rate average 100% more than when ingested 40 / 45mg / kg. And the World Health Organization (WHO) 14, reports that suicide is one of the top ten causes of death in all countries, and one of the top three causes of death in the age group of 15 to 35 years in developed countries, thus considering a worldwide public health problem, in which 90% of suicides the individual had or has a mental problem.

For the Ministry of Health¹⁵, the total of 8697 cases of poisoning attributed to suicide attempts, 11.6% came from the use of pesticides. In addition, 200,115 was recorded 5,384 cases of poisoning caused by pesticides in the country, accounting for 7.1% of total poisoning.

The Ministry of modern-day Saúde²³ revealed that in 2011, 3,937 in Brazil occurred poisoning by agricultural use of pesticides, these 835 cases attacked the age group 20-29 years. Revelaram²³ although the northern region had in 2012, 62 cases of poisoning by agricultural use of pesticides but no patient died.

The Poison Center of Rio Grande do Sul²⁴ revealed in its statistical data from 2005 to 2013, the state of Rondônia in all its municipalities had 15 cases of pesticide poisoning in males and 09 cases in females. Being a problem with high incidence and prevalence with a mortality rate of over 70%, among the people of various ages is important for nurses to know the predominant features of the evolution of the intoxicated patient by PQ and be prepared to implement the nursing interventions necessary in order to avoid the development of the PQ, the victim's body, with a multidisciplinary approach.

The case study is important and relevant to the area of general health in order to broaden the field of intoxication with PQ parent rally, finding ways to facilitate and prevent the rapid evolution of the PQ. Providing support to the team in patient care, especially the nursing team, which is responsible for providing them an inpatient care in the intensive care unit.

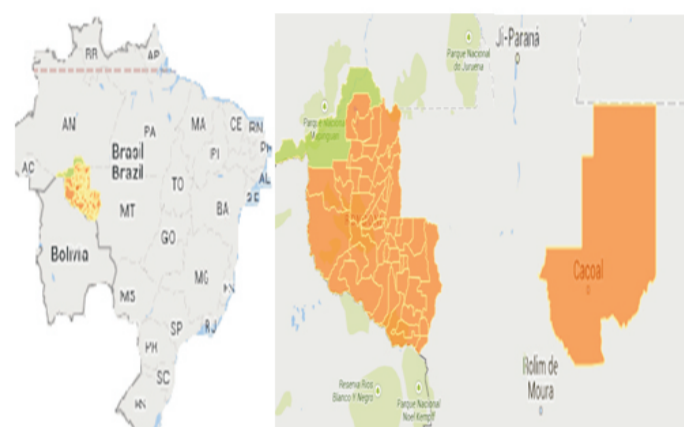
Given the objective of the research to the foregoing was to present a case and propose the main diagnostic labels nursing in intensive care in vivo in parenteral Paraquat poisoning.

2 MATERIALS AND METHODS

This is a qualitative descriptive case report, where we used a retrospective approach to medical record of a patient admitted to the intensive care unit. Data collection took place in August 2014 in a large public hospital convened 100% to the Unified Health System (SUS).

Unreadable medical record information was deleted. The place designated for the research was the Regional Hospital of Cacoal/RO (HRC), located inside the south of Rondônia (Brazil). The city of Cacoal has an area of 3792.948 square kilometers and a population estimated by the 2014 census of 86,556 hab.²².

Figure 01- Map of Brazil, Rondônia and the site of the parenteral poisoning PQ.



Font: IBGE, 2015

The case study can be defined as a limited study of the operation of a system, obtained from a collection of detailed data, involving several information sources. These are suitable for application in direct nursing care, in order to conduct a thorough study of the problem and needs of the patient, family and community, with the possibility of developing strategies to solve problems or reverseencontrados^{17,18}.

According to Nanda International²⁰ the nursing diagnosis (DE) is the second phase of the process, in which the data collected, nursing phenomena are identified. The identification of nursing diagnoses used the clinical judgment considering the patterns of human responses and clinical reasoning understood as the analysis and complex decisions of the state of the person, family and their contextual situation, established by Johnson^{19,20}. Thus, the initial phase comprises up analysis and synthesis of data obtained from the information extracted from the case, while the next phase characterized by the establishment of nursing diagnosis labels itself. The survey was conducted after approval by the Research Ethics Committee (REC) of the Faculty of Biomedical Sciences Cacoal (FACIMED) with opinion embodied number 765355/2014.

2.1 THE CASE STUDY

A 24-year-old female, lived in a city in the South within the Legal Amazon, nursing technique, not active in the profession, reported being depressed and had contemplated suicide to 3 years, the date of the incident. Was found lying, crying, claiming to have injected into the "vein" gramocil (PARAQUAT), was immediately taken to the emergency room on March 12, 2013, staying there under observation for 24 hours tests revealed hemoglobin: 12.1mg/dl; hematocrit: 37.4%; leukocytes: 17,600; targeted: 90; Bats: 2; 140,000 platelets; urea: 18; creatinine: 1.2; Transaminases AST (SGOT): 25; Transaminases ALT (SGPT): 30; CPK: 168; K⁺: 3.0; Na⁺: 143.

On March 13, 2013, was referred there is an Emergency Department (ED) of a pole municipality of health, ambulance arriving, entering the unit ambulating with Glasgow 15/15, blood pressure (BP) of 120 / 80mmHg, heart rate (HR) of 80 bpm, respiratory rate (RR) of 14irpm, oxygen saturation (SatO₂) 96%, AST: 142, TGP: 77, urea: 68, creatinine: 3.1. It is observed hemodynamic stability, but the tests show impaired renal and hepatic function, in addition to the progressive development with the metabolism of the FP by the body of the victim at the end of the 13th examinations revealed decreased hemoglobin and hematocrit to 10.9 to 32.4 and bats 4.

On March 14 was referred to intensive care while maintaining level of consciousness, intense headache, facial expression "sad", tachydyspnea (32irpm), oliguria, pale, hyperemia in the left biceps region with necrotizing area first, and the patient reported being there where it injected the PQ parenterally was last double-lumen central venous catheter installed and drugs prescribed by the doctor as metilprednisolona 125mg intravenous 6 / 6h, Unsay 3gr 6 / 6h, omeprazole 40 mg 1 time, N-acetylcysteine intravenously 01 ampoule Vitamin C 03 serum vials.

On 15 March with a worse condition, as expected for the full development of the PQ in the body with functional impairment, tracheal intubation was performed at 17h, by presenting FR 50 bpm, mental confusion, general pallor, installed sedation and analgesia in dripping (dormind and fentanyl). Was not performed hemodialysis for not having this service in this period and the hemodialysis center of reference is outside the ICU and the patient had no clinical conditions being transported. Patient died on March 18, 2013, being certified by the physician on duty.

According to the case presented above and clinical judgment of any problems and / or extracted information from the medical record of the patient, the data presented below bring the main diagnostic labels nursing, domains and their respective classes that follow based on the Nanda International²⁰. Make and / or elaborate nursing diagnoses is a complex process that involves human behavior related to health^{19,21}

Table 1 – Major labels nursing diagnoses according to the clinical course of a patient with parenteral PQ poisoning in the Amazonia/Brazil2015.

Domain	Class	Nursing diagnoses of Nanda-International
II- Nutrition	Class 4: Metabolism	4.1. Risk of impaired hepatic dysfunction (00171)
III- Disposal and exchange	Class 1: Urinary function	1.1. Urinary elimination impaired (00016)
	Class 2: Gastrointestinal function	2.1 Constipation Risk (00015)
	Class 4: Respiratory function	4.1 Impaired gas exchange
IV- Activity / rest	Class 1: Sleep / Sleep	1.1 Of disturbed sleep pattern (00198)
	Class 2: Activity / exercise	2. 1 Walking impaired (00088)
		2. 2 Mobility Impaired bed (00091)
	Class 3: Energy Balance	3. 1 Fatigue (00093)
	Class 4: Cardiovascular / pulmonary responses	4.1 Ineffective breathing pattern (00032) 4. 2 Cardiac output decreased (00029) 4. 3 Risk of ineffective renal perfusion (00203) 4.4 Ineffective cerebral tissue perfusion risk (00201) 4.5 Spontaneous 5Ventilação impaired (00033) 4.6 Ineffective peripheral tissue perfusion risk (00228) 4. Risk of gastrointestinal inefficient perfusion (00202)
Class 5: Self Care	5.1 Self-care deficit for food (00102) 5.2 Self-care deficit bath (00108) 5.3 Self-care deficit intimate hygiene (00110)	
V- Perception / cognition	Class 4: Cognition	4.1 Acute likelihood of confusion (00173) 4.2 Acute confusion (00128)
	Class 5: Communication	5.1 Impaired verbal communication (00051)
VII- Roles / relationships	Class 2: Family relationships	2.1 Interrupted family processes (00060)
IX- coping stress tolerance	Class 2: Coping responses	2. 1 Anxiety 2. 2 Fear
XI- security protection	Class 1: Infection	1.1 Risk of infection (00004)
	Class 2: Mayhem	2.1 Impaired skin integrity (00047)
		2.2 Risk of injury (00035)
		2.3 Bleeding risk (00206) 2.4 Aspiration hazard (00039) 2.5 Shock hazard
	Class 3: Violence	3.1 Suicide risk (00150)
Class 4: Environmental risks	4.1 Poisoning Risk (00037)	
Class 6: Thermoregulation	6.1 Thermoregulation ineffective (00008)	
XII- comfort	Class 1: Physical comfort	1.1 Acute pain (00132)
	Class 2: Environmental comfort	2.1 Comfort impaired (00214)

Font: Authors (2015).

In this study addressed only to stage of historical and nursing diagnosis, both are part of the nursing process, diagnose health problems in patients in intensive care unit (ICU) with parenteral poisoning PQ, provides a basis for the implementation of achievement of positive health outcomes.

With regard to the case report the identification of nursing diagnoses in patients with PQ poisoning in the ICU will providers freshmen and applicability of the practice, since the diagnoses refer the specific interventions that will be addressed in another scientific study.

3 FINAL CONSIDERATIONS

Therefore, DE 35 was identified after judgment and clinical reasoning of all relevant information to the case. The application of the nursing process approach with only the first stage research and the second step the DE, this study enabled the identification of areas and classes by using the Nanda-I taxonomy providing the ICU nursing staff to develop an assistance based on scientific knowledge with the conscious use of Nanda-I. It was possible through the clinical case describe the clinical course on the second day after the suicide attempt, the patient had hepatorenal involvement and the third day had severe respiratory clinical manifestations, and died on the fourth day.

Moreover, it can be concluded that when injected parent rally can lead to PQ 100% mortality. Thus we understand the importance and relevance of the case, so we suggest other studies involving the nursing interventions, characterization of clinical with laboratory tests; to guide actions of nurses from different specialties and other health professionals, so that such contributions can include workers from the countryside, and the general population exposed to this pesticide.

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