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Nursing Care for Patients with Animal Bites that Transmit Rabies: A Case Report

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ABSTRACT

Rabies is a disease caused by the Ribonucleic Acid (RNA) virus from the Rhabdoviridae family, a neurotropic, highly contagious, bullet-shaped virus. Analyzing an overview of case studies in providing nursing care to patients with bites from animals that transmit rabies in the emergency unit of the Kepanjenkidul Health Center, Blitar City. This case study was carried out on 4 patients who were bitten by rabies-transmitting animals, who had received nursing care in accordance with Indonesian nursing care standards and were evaluated on the 7th day after the bite. The results of the case study show that from the four cases nursing diagnoses emerged of impaired skin/tissue integrity, acute pain, risk of infection with nursing interventions including pain management, wound care, and infection prevention. All implementations were carried out in accordance with planning, the results of the evaluation on the seventh day all nursing care goals were achieved and there were no further complications. There is a need to socialize standards for management of rabid animal bites and improve coordination between health workers and related agencies to immediately carry out mitigation

Keywords: Nursing Care, animal bites, Transmit rabies

Background

Zoonoses are diseases or infections that are transmitted naturally from animals to humans, one of which is rabies (1). Rabies is a zoonotic disease that is still a public health problem in Indonesia (2). There are two rabies cycles: urban rabies and sylvatic rabies. Dogs that are left alone without special care often enter the urban rabies cycle and attack humans, animals such as cats, monkeys, pigs or other animals (3). Rabies has caused death in quite a large number of people. The World Animal Health Organization (OIE) revealed that the global human death rate due to rabies is almost 70 thousand per year. In other words, every 10 minutes one person in the world dies from rabies(4). Based on the results of a preliminary study conducted on data from the Blitar City Health Service in the field of P2PM (Prevention and Management of Infectious Diseases), there were 169 cases of animal bites that transmit rabies (GHPR). Of the 169 cases, cats accounted for the most HPR with 105 cases, dogs 46 cases, monkeys/apes 17 cases.

Treatment for bites from animals affected by rabies includes surgical and medical treatment, with each case being individual. Bites from animals that transmit rabies tend to result in more cuts and avulsive injuries, which can result in infection, if not treated properly, but with modern understanding of microbiology, empiric antibiotic therapy can help reduce the risk of infection(5).

Keeping pets has become part of the lifestyle of today's modern society (6). The pets that

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most Indonesians own are cats and dogs, both of which transmit rabies, so the risk of bites for these pet owners is increasing. Pre-exposure prophylaxis is recommended for individuals who frequently come into contact with animals (7). Based on the research results, data was obtained that all respondents knew about rabies and 98.6% knew about transmission through dog bites. Only 31.1% want to perform first aid independently, 36.4% will visit a doctor to get first aid and the rest do nothing or carry out religious practices to prevent the development of rabies. 86.6% of individuals know about the importance of antirabies vaccine and 24.4% know that pet dogs need to be vaccinated against rabies ((8)

Early intervention and prompt medical treatment are critical to preventing complications from rabies exposure. Giving the rabies vaccine immediately after exposure can prevent 99% of deaths, while post-exposure vaccination is especially important for those who are bitten or scratched by rabid animals (7). Emergency nurses have an important role in providing appropriate nursing care for dog bites (9). To improve the quality of nursing care for rabies bite patients, nurses can use Lewins' theory of change approach to identify forces that support and inhibit change, move through the stages of thawing, changing, and refreezing, and involve leadership in the change process. Data collection and analysis skills are critical to evidence-based health care reform in nursing practice(10). This is in accordance with procedures for managing patients with infectious animal bites in Indonesia, the form of implementation of which is not only providing assistance to patients but also coordinating with cross-sectors in carrying out mitigation as an effort to prevent further transmission (2). In analyzing data on emerging nursing problems, Indonesian nurses use the Indonesian Nursing Care Standards (11),(12), (13).

The knowledge and role of nurses in providing nursing care to animal bites that transmit rabies patients is very important in efforts to provide first aid. In this regard, the author is interested in making a case study of nursing care for animal bites that transmit rabies patients in the emergency room of the Kepanjenkidul Health Center, Blitar City.

Methods

This research uses a qualitative method with a case study approach where the study is specifically designed to study in detail and in depth about a case and includes sources of information that are limited by time and place, and the cases studied are events, activities or individuals. This case study aims to explore the description of nursing care for patients with animal bites that transmit rabies. Thus, researchers focus on the nursing care process starting from assessment to evaluation. This research was conducted in the emergency room of the Kepanjenkidul Health Center, Blitar City, on 4 patients who were bitten by rabid animals. Next, the researcher carried out an assessment, determined a nursing diagnosis, planned and carried out nursing actions and evaluated the actions that had been taken. After completing the nursing care, the researcher discussed and concluded the results of this case study

Results

Based on the assessment data, there were 3 adult patients and 1 elderly patient. Of the four patients who were bitten by rabies-infecting animals, all the animals that bitten were cats and epidemiological investigations were carried out < 24 hours after the incident. In the wound assessment results for patients 1 and 2, it was found that the wounds were low risk (abrasions, no bleeding) including elderly patients. In patients 3 and 4, the results of the wound assessment were found to be at high risk (abrasions at many points, deep wounds, and swelling around the wounds). All traumatic wounds tend to be contaminated with bacteria and other microorganisms.

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In the four cases taken, the diagnosis was the same, including acute pain, impaired skin/tissue integrity, and risk of infection. The nursing diagnosis is in accordance with nursing diagnosis standards in Indonesia. According to researchers, all objective and subjective data from the patient's assessment results fulfill the major data in selecting the diagnosis.

Nursing interventions are in accordance with standard nursing care interventions in Indonesia in all four cases using pain management interventions, because they are to reduce pain sensory disturbances caused by trauma from scratches/bites from rebies-transmitting animals. Then there is wound care nursing intervention where nurses carry out wound care on bite marks from rabies-infecting animals to prevent complications and further infection. In accordance with standard operational procedures for handling cases of animal bites that transmit rabies, wound care is immediate first aid that must be carried out, during the golden period, namely < 12 hours after the bite incident.

Infection prevention is an intervention carried out by nurses to identify and reduce the risk of being attacked by pathogenic organisms. In the four cases, intervention to prevent infection was carried out because from the results of the examination, the bite wound caused damage to skin tissue which caused trauma due to bacterial/mycoorganism infection, and in patients 1 and 2 the criteria for low risk wounds required collaboration in administering antibiotics. And patients 3 and 4 have high risk wound criteria and require collaboration in administering VAR (Anti-Rabies Vaccine) and the addition of oral antibiotics.

The implementation of pain management carried out by nurses emphasizes reducing pain sensory disturbances caused by trauma from scratches/bites from rabies-infecting animals by monitoring the location, characteristics, duration, frequency, quality, intensity of pain, identifying the pain scale, identifying the pain response, and collaborating with the administration of painkillers to relieve pain. In these four patients, the painkiller mefenamic acid 500 mg was given orally at a dose of 3 times a day. The implementation of wound care in the 4 patients started from washing the wound to administering dressings in the form of topical antibiotics. Meanwhile, implementing infection prevention is an effort to prevent infection and reduce the risk of infection in bite wounds from animals that transmit rabies. The bite wounds in patients 1 and 2 are low risk wounds, therefore preventing infection needs to be carried out in collaboration with the administration of the antibiotic amoxicillin 500 mg given orally 3 times a day. In patients 3 and 4, these include high risk wounds, therefore it is necessary to collaborate in administering VAR (Anti-Rabies Vaccine) 1, which consists of 2 doses, injected intramuscularly into the right and left arms, each with a dose of 0.5 ml.

In patients 1 and 2, evaluation was carried out until day 7, because the results of the observations made showed that the condition of the wound was a low risk wound and on day 7 the pain was reduced, there was no infection and the wound healing was in accordance with the stages of wound healing, it was seen that the wound was closed. In patient 3, the evaluation was carried out until day 21, because the results of observation of the wound in patient 3 showed a high risk and received VAR 1 on day 1. Continuing to give VAR 2 on day 7 and VAR on day 21 was given because the results of the observation showed indications for giving VAR 3. In patient 4 the evaluation was carried out until day 21, because the results of observation of the wound in patient 4 showed high risk and received VAR 1 on day 1, then VAR 2 was given on day 1. on the 7th and on the 21st day VAR 3 was not given because from the observation results, there was no indication of giving VAR 3.

Discussion

Of the four patients who were bitten by animals that transmitted rabies, all the animals that bitten were cats and epidemiological investigations were carried out < 24 hours after the

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incident. Epidemiologically, cats are an important vector of rabies lyssavirus but not a reservoir of the virus. Typically, cats are only incidental hosts, infected with the rabies lyssavirus that is dominant in their geographic location. Stray and domestic cats are at risk of infection with rabies lyssavirus (14). The epidemiological investigation carried out was very appropriate, to reduce the risks related to community transmission, agriculture and conservation biology from a One Health perspective.

Based on the assessment data, there were 3 adult patients and 1 elderly patient. In the wound assessment results for patients 1 and 2, it was found that the wounds were low risk (abrasions, no bleeding) including elderly patients. In patients 3 and 4, the results of the wound assessment were found to be at high risk (abrasions at many points, deep wounds, and swelling around the wounds). It is well known that wound healing slows with age (15). The results of the research show that there is a relationship between age and wound healing with a value of ρ value = 0.001(16)(16). However, from the results of this case study, the elderly and adults had the same wound healing process or in accordance with the phases of wound healing and no infection appeared after evaluation on the seventh day.

In accordance with standard operational procedures for handling cases of animal bites that transmit rabies, wound care is immediate first aid that must be carried out, during the golden period, namely < 12 hours after the bite incident. Based on the results of research in Senega from 95 respondents, it was found that health professionals in rabies management had sufficient knowledge (35.8%), positive attitudes (26.3%), and good practices (45.3%). Multivariate analysis results showed that health professionals working in urban areas (AOR = 11.10; 95% CI = [3.50–41.69]) and those working in the animal health field (AOR = 7.45; 95% CI = [1.16–70.40]) were more likely to have sufficient knowledge about rabies. Professionals with positive attitudes about rabies (AOR = 3.23; 95% CI = [1.08–10.70]) were more likely to have good skills when faced with cases of bites from rabid animals. It can be concluded that health workers' knowledge about rabies greatly influences their attitudes and practices towards rabies(17)

Infection prevention is an intervention carried out by nurses to identify and reduce the risk of being attacked by pathogenic organisms. In the four cases, intervention to prevent infection was carried out because from the results of the examination, the bite wound caused damage to skin tissue which caused trauma due to bacterial/mycoorganism infection, and in patients 1 and 2 the criteria for low risk wounds required collaboration in administering antibiotics. And patients 3 and 4 have high risk wound criteria and require collaboration in administering VAR (Anti-Rabies Vaccine) and the addition of oral antibiotics. Frequent incidents of inappropriate wound management and delayed post-exposure prophylaxis (PEP) in animal bite victims, even though Rabies prevention clinics (RPCs) are appropriate. Lack of knowledge and poor awareness may be the main reasons for inappropriate PEP. Education and outreach as an effort to increase knowledge must be a priority to prevent rabies(18). Indonesia is a country that has a fast and responsive response to overcoming the spread of zoonotic diseases(19). The future of rabies treatment is not completely bleak, the development of rabies treatment makes it possible to provide direct-acting antivirals combined with neuroprotective therapy. In the future, therapeutic immunotherapy may also be provided through innovative methods(20).

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Conclusions and Recommendations

After the researchers carried out nursing care, it was found that all the rabies-infecting animals in the cases taken were cats, and an epidemiological investigation had been carried out <24 hours from the bite incident. Having the same nursing diagnosis according to Indonesian nursing diagnosis standards, all nursing interventions can be carried out in implementation and in evaluation, there was 1 case where VAR was given up to the third VAR and the evaluation lasted up to 21 days. So the suggestion for health workers is to increase knowledge about the management of victims of animal bites that transmit rabies, especially the ability to coordinate in epidemiological investigations.

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