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Optimizing The Life Quality of Children Under SDGs

POLTEKKES KEMENKES YOGYAKARTA

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October, 11th, 2015
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THE 2nd INTERNATIONAL CONFERENCE ON HEALTH SCIENCE 2015

"Optimizing The Quality of Life Children Under SDGs" (Sustainable Development Goals)

October 11st, 2015
INNA GARUDA HOTEL YOGYAKARTA, INDONESIA

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THE APPLICATION OF MYRA E. LEVINE CONSERVATION MODEL ON PEDIATRIC CARE FOR CHILDREN WITH THE RISK OF IMPAIRED SKIN INTEGRITY AT INFECTION ROOM BUILDING A FIRST FLOOR RSUPN Dr. CIPTO MANGUNKUSUMO JAKARTA

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ABSTRACT

Children who have to undergo hospitalization in general are at risk of suffering traumatic experience due to exposure to various stressors, from physical aspect to psychological, social, and environmental aspect[1]. During hospitalization, children are prone to suffer from several health issues, including impaired skin integrity due because their skin structure, system, and function are still adjusting and yet to optimally function [2]. Children's skin will experience several changes during the first 18 years [3]. Morphologically and functionally, children's skin is different to that of adult [4,5]. This research aims to give a description about the application of Levine Conservatio Model in pediatric nursing as well as overall performance and roles of nurses in providing pediatric care for children with the risk of impaired skin integrity. Data were collected through case studies and literature studies. The subjects in this research were inpatients with the risk of impaired skin integrity at infection room at building A first floor, RSUPN Dr. Cipto Mangunkusumo, Jakarta. The data were analyzed consecutively with Norton scale and Braden Q. scale. The measured variables were skin integrity by observing the occurrence of rashes, blisters, and capillary refill time assessed from patients' record during hospitalization. Skin integrity in all cases under the research could be maintained, confirmed by no proves of rashes, blisters, and capillary refill time of less than two seconds. Levine Conservation Model could be implemented on patients with the risk of impaired skin integrity.

Keywords: conservation model application, skin integrity

BACKGROUND OF THE PROBLEMS

Children who have to undergo hospitalization in general are at risk of suffering traumatic experience due to exposure to various stressors, from physical aspect to psychological, social, and environmental aspect.[1] During hospitalization, children are prone to suffer from several health issues, including impaired skin integrity due because their skin structure, system, and function are still adjusting and yet to optimally function [2]. Children's skin will experience several changes during the first 18 years.[3] Morphologically and functionally, children's skin is different to that of adult.[4,5] Physiologically, electrolyte and fluid disorders are frequently happened and increased faster in infants and children compared to elder children and adults. Greater fluid level proportion and surface area which is relatively wider than their bodies increase the risk of dehydration because the increasing of metabolic need while getting fever, so it causes the skin becomes moist and easy to get pressure ulcers.[6]

Impaired skin integrity can occur faster than expected. Pressure ulcers can occur in 2-6 hours after getting acute care.[7] A survey identifies that pressure ulcers experienced by

children when being hospitalized mostly on stage I ulcer (61%) and stage II ulcer (13%), and generally were located on occiput (31%), sacrum (20%), and heels (19%).[8]

Maintaining skin integrity is often ignored since nurses more focus on life threatening problem that is seen as the most priority problem, however skin is the widest body organ and has a complex function.[9] Skin receives one third of blood circulation from the body and serves a lot of functions including protection, immunity, thermoregulation, metabolism, communication, identification and sensation.[9] Nurses have an important role and responsibility in preventing pressure ulcers. Thus, early detection of pressure ulcer risks in inpatient children is important to know, so prevention and early intervention can be conducted to prevent further complication.

The role of pediatric nurses are promoting diseases prevention, health promotion and health education, building therapeutic relation, giving support and counseling, coordinating and collaborating, being family advocate, making ethical decision and conducting research.[1] Those roles are integrated in providing comprehensive nursing care. According to[10], there are three areas of main nursing intervention in preventing pressure ulcers. The first is skin treatment including hygiene treatment and topical application. Second is mechanical prevention and surface support including position arrangement and bed utilization, and the third is education.

Nurses' role in giving nursing care is conducted based on nursing model. Nursing model is used as guidance in conducting nursing proses and optimizing nursing care in children and family. One of nursing models that can be applied in providing pediatric care for children with the risk of impaired skin integrity is conservation model that is developed by Myra E. Levine which is known as Levine's Conservation Model.

PURPOSE

To give a description about the application of Levine Conservatio Model in pediatric nursing as well as overall performance and roles of nurses in providing pediatric care for children with the risk of impaired skin integrity.

METHOD

Data were collected through case studies and literature studies. The subjects in this research were inpatients with the risk of impaired skin integrity at infection room at building A first floor, RSUPN Dr. Cipto Mangunkusumo, Jakarta. The data were analyzed consecutively with Norton scale and Braden Q. scale. The measured variables were skin integrity by observing the occurrence of rashes, blisters, and capillary refill time assessed from patients' record during hospitalization.

RESULT

Skin integrity in all cases under the research could be maintained, confirmed by no proves of rashes, blisters, and capillary refill time of less than two seconds.

DISCUSSION

The assessment is conducted by considering Levine's conservation principals. Risk factors of pressure ulcers are intensity, pressure duration, and tissue tolerance as the main factor of pressure ulcer.[11] The study in patients with the risk of impaired skin integrity

includes assessment of the risk of impaired skin integrity and physical condition of skin. The assessment of impaired skin integrity risks can be done by using instruments such as Norton scale, Braden scale, Braden Q scale, and Glamorgan scale.[12,13];while the assessment of the skin condition includes skin color, temperature, and sensory perception disturbance.

The result of pressure ulcer risk assessment in five cases under the research that was conducted using Norton scale is on the 12-14 span, it means all cases under the research has a medium risk of pressure ulcer. In reality, those five cases did not experience pressure ulcer. It may happen because the nurses had conducted prevention based on the protocol of pressure ulcer prevention management well. This condition is in line with the research result which gives information that there is no significant relation between the Braden Q scale score and the occurrence of pressure ulcer.[14] Another research result also gives information that identifying person with the risk of pressure ulcer is the first step in conducting effective pressure ulcer prevention.[15]

The assessment of pressure ulcer risk in the five cases under the research was conducted using the existing instrument in the room, it was Norton scale. However, in the application, using Norton scale created different interpretation since the unclear operational definition in the aspect of mobility and incontinency assessment, so residents also used Braden Q scale to compare. The study of pressure ulcer in children using Braden Q scale supported by a research result that showed the use of Braden Q scale[16], Glamorgan scale[17], and Neonatal Risk Assessment Skin[18] to review pressure ulcer risk in children.

The research result gives information that Braden Q can predict individual with the risk of pressure ulcer, even individual without the risk of experiencing pressure ulcer because having higher sensitivity/specificity than Norton scale. Besides that, Braden Q scale can be used for all ages in children, including neonates and children above 8 years old. Braden Q scale has high, objective, structured and measurable inter-rater reliability so Braden Q scale can give consistent result even though it is used in different care setting such as: acute care, chronic care, palliative care, PICU, NICU, home care, even in adult patients care.[19,20]

The factor of pressure ulcer in age is at the lifespan of 10 months to 15 years old. In fact, the five cases under the research did not experience pressure ulcer. It may happen because the nurses had provided optimum nursing care, even though age is one of pressure ulcer factors. This condition is not in line with the research result which informs that age will increase the risk of pressure ulcer; those are movement and pressure intensity, humidity, nutrition status, anemia, infection, fever, peripheral circulatory disorder, obesity and cachexia.[10] The increase of pathologic frequency related to age is influenced by various mechanisms like bad nutritional status, ferocity, mineral and vitamin deficiency, anemia, immune disorder, cardiovascular and respiratory disorder, peripheral vascular disease, systemic disease, and chronic infection.

Younger children are at the high risk to experience pressure ulcer.[21,23,24] Another research also gives information that baby skin has a high risk in experiencing impaired skin integrity because the thin and immature epidermis.[22] The structure of baby skin is thin and the cells are smaller than adults' skin.[24] Baby skin also has higher absorption than adults. The difference of the absorption level is a predisposition of the dry and scaly skin.[24]

The risk of pressure ulcer in nutrition shows that in in the five cases under the research it was found good nutritional status and low nutritional status. In reality, there is no pressure ulcer in the five cases under the research. This condition is in line with the research result that shows there is no significant relation between nutritional status and pressure ulcer

occurance.[14] It may be caused of the patients get nutrition as they need. This condition is not in line with the research result which says that lack of nutrition is a risk factor of pressure ulcer occurrence.[21,25,26] Another research also identifies that there is a relation between insufficient calorie and protein intake from food and the risk of pressure ulcer occurrence.[28,29,30]

Good nutrition is important to optimize body function and immunity.[31] Malnutrition can harm body function overall by changing metabolism, obstructing tissue regeneration, and influencing inflammation response.[32] A research reports that there is a strong relation between nutritional status and hydration to pressure ulcer occurrence.[33] This research is in line with the research result which shows that adequate nutrition and hydration have important roles in preventing pressure ulcer and maintaining tissue integrity.[34,35,36,37,38,39] The research result also gives information that malnutrition patients have twice greater risk for pressure ulcer occurrence.[32]

As seen from the risk factor of pressure ulcer in the form of decreasing mobilization and activities, the five cases under the research experience decreasing mobilization and activities. In reality, those five cases did not get pressure ulcers, even though the research result reports that the mobilization decrease is caused by movement and activity decrease so it increases the risk of soft tissue compression occurrence. Impaired tissue happens when soft tissue is compressed between bone bulging and external surface in long time, so the arteriole and capillary are under external pressure.[13,40] This might be caused by optimal prevention intervention from nurses, like changing patient position regularly at least once in two hours. This action is supported by research result which informs that position arrangement is conducted to reduce pressure on bones that bulge which is done every 2 hours.[41] Blood vessel compression causes blood supply decreased, so oxygen supply that contains important nutrition to maintain the cells becomes lower. Thus, it causes hypoxia, cell death, injury in the around areas and finally occurring pressure ulcers.[42,43]

Pressure ulcer risk factor in the form of patient, in 4 cases under the research are related to neurologic problem and 1 patient is related to immunosuppressive problem and persistent diarrhea without dehydration. In fact, those five cases under the research did not experience pressure ulcer even though the research result shows that patient with neurological problem is in high risk to experience repetitive pressure ulcer.[44] Another research result also informs that children with neurological disorder increase the risk of pressure ulcer.[27] This is also in line with the research result which informs that pressure ulcer risk factor in infants and children is increased in neurological disorder, malnutrition, tissue perfusion, inadequate oxygenation, and long exposure of medical equipment exposure.[45] It might be caused by nurses have conducted pressure ulcer prevention intervention correctly.

One of the cases under the research is persistent diarrhea without dehydration. In reality, the case of diarrhea without dehydration do not experience pressure ulcer, even though diarrhea is a condition that can cause humidity, in which humidity is the risk factor of pressure ulcer, as stated in the research result which shows that skin humidity generally is caused by sweat, urine, feces, or wound drainage that decrease tissue tolerance. It is because urine and feces are irritating so it causes tissue damage easily.[46,47] Humidity can also reduce skin resistance to other physical factors like pressure.[48] Humidity increases pressure ulcer risk factor five times bigger.[10] Another research informs that in diarrhea condition, the feces contain bacteria and enzyme that can disrupt normal flora balance in skin. Skin has average pH 5,5 that is a little bit sour and act as a natural protector to prevent bacterial growth.[47] It might be because parents have cleaned their infants' butts and changed the wet diapers to prevent humidity.

Risk factor of pressure ulcer in the form of length of stay shows that the five cases under the research is from 8 to 10 days. In fact, those cases did not experience pressure ulcer. It might be because nurses have given intervention optimally, even though the research result shows that children with length of stay more than 4 days have high risk of pressure ulcer.[21,22] This condition is supported by research result which informs that there is no significant relation between length of stay and pressure ulcer occurrence.[14] Another research also reports that length of stay can cause pressure ulcer depending on intensity and pressure duration toward body areas. There is no scientific agreement on the length of pressure before pressure ulcer occurrence. Light pressure for prolonged periods of time is as dangerous as hard pressure in short periods of time.[47]

Risk factor of pressure ulcer in the form of reduced consciousness shows that two cases under the research come with reduced consciousness (somnolence). In fact, cases under research which experience reduced consciousness do not get pressure ulcer.[10] Patients with confused condition, disorientation or decreasing consciousness is not able to feel pressure, but do not able to understand how to remove the pressure. Comma patients cannot feel pressure and are not be able to change position so it increases the risk of pressure ulcer occurrence.[10] It might be because the nurses have given prevention nursing intervention correctly like conducting reposition every 2 hours to reduce pressure and protect pressure area by putting pillow under the legs.

Skin physical assessment in the form of body temperature shows that those five cases are in range 36.4°C-38.3°C. There are two cases under the research that experience hyperthermia (38°C-38,3°C). In fact, two cases under the research with hyperthermia do not experience pressure ulcer, even though increasing body temperature is a risk factor of pressure ulcer.[49] This condition might happen because nurses have given optimal intervention to lower the risk of pressure ulcer by reducing body temperature. Those interventions are Water Tepid Sponge (WTS), giving fever reducer, and suggesting the patients and their families to increase the fluid intake. A research gives information that the increasing of body temperature is related to the occurrence of pressure ulcer.[48] The increasing of body temperature can also increase perspiration, so skin condition will be more humid because of sweat and it can be a predisposition of impaired skin.[48]

Water Tepid Sponge (WTS) conducted in cases with hyperthermia is an independent nursing action to reduce body temperature. This action is supported by research result which gives information that WTS is effective to reduce fever by triggering vasodilatation which can increase the releasing of body heat. WTS action is recommended as a combination therapy with antipyretic to reduce body temperature.[50] Another research also states that there is a significant relation between giving WTS and the decreasing of body temperature.[51] This result is in line with the research that shows there is a significant influence between giving WTS and the decreasing of body temperature in hyperthermia patient.[52]

Patients under the research consist of 4 male and 1 female. In fact, the five cases under the research do not experience pressure ulcer. This might happen because gender is not a risk factor of pressure ulcer occurrence. This is supported by research result that show gender is no related to pressure ulcer occurrence.[22] This condition is in line with the research which gives information that there is no significant relation between gender and pressure ulcer occurrence.[14]

Evaluation is conducted by assessing the patients' organismic response to the intervention given. The results in the five cases under the research generally are skin is intact

there is no rashes, blisters, and capillary refill time of less than two seconds so impaired skin integrity does not occur.

CONCLUSION

Nursing care in cases under the research of children with the risk of impaired skin integrity is conducted in patients whose ages are 10 months to 15 years, most of them are male, with malnutrition and inadequate nutrition, with neurological disorder and diarrhea, with length of stay 8-10 days, and have a medium risk to experience impaired skin integrity with Norton score 12-14. The evaluation result shows those five cases do not experience impaired skin integrity.

SUGGESTIONS

1. Service
   Nurses have to improve the competence in conducting assessment of pressure ulcer risk to all patients since entering hospitals for early detection of pressure ulcer risk and assessment of pressure ulcer risk conducted in every shift to find out the development of pressure ulcer as an effective prevention effort, besides the ability to empower patients' family by involving the family during the children's stay and giving education for patients and family about pressure ulcer prevention as a part of discharged planning so the sustainable nursing care can be conducted.
2. Research
   The application of Levine Conservation Model can become the design, evaluation of theory based intervention and development of knowledge to support nursing practices.

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