Pressure Ulcer Prevention

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Abstract

This paper explores various published articles relating to pressure ulcers and why it’s important in healthcare to prevent them. Not only this, but there were two websites used to get general information about pressure ulcers. This research was all conducted through the use of the internet libraries supported by Northern Illinois University. The articles vary in their content range. Multiple articles give preface to what pressure ulcers are and their staging. Once staged, healthcare professionals can then determine the best course of treatment. However, the more advanced the ulcer, the more difficult to treat furthering the importance to prevent them. The majority of the articles reviewed for this research talk specifically about pressure ulcer prevention and the best methods to do this clinically. This paper is going to describe what a pressure ulcer is, methods in which patients get them, and predisposing risk factors. All of this information is essential to the reader to know what a pressure ulcer is so that they can prevent it. By understanding the pathophysiology, healthcare workers can use their knowledge and critical thinking to prevent one from forming. Hospitals can prevent pressure ulcers from happening, and if they don’t, the cost of treatment will be paid for by the hospital. The message of this paper will be the most evidence-based methods on how to prevent pressure ulcers in patients: the use of a care bundle with turning patients every two hours.
Pressure Ulcer Prevention

Introduction

Pressure ulcers are a significant topic in the medical field because in 2006 about eleven billion dollars was paid out for those who had a pressure ulcer as either their primary or secondary diagnosis during their hospital stay (Wake, 2010). This number is large for something that is highly preventable with optimal patient care. Not only this, but the Center for Medicare and Medicaid Services released a policy stating that reimbursement will be withheld to acute-care hospitals for costs that are related to hospital-acquired conditions, including pressure ulcers (Wake, 2010). This means that it is the hospital’s responsibility to prevent pressure ulcers in patient or they will not get reimbursed for the costs of treatment. Additionally, it is important to note that pressure ulcers occur in up to 23% of patients in long-term care facilities and are seen in 10%-14% of patients who are located in the ICU (Berlowitz et al., 2014). The AHRQ (The Agency for Healthcare Research and Quality) reported that nearly two-and-one-half million Americans are affected by pressure ulcers every year. Of the two-and-one-half million Americans, 60,000 patients die as a direct result of developing a pressure ulcer (Berlowitz et al., 2014). These statistics put into perspective how large of an issue pressure ulcer is in the medical field and why health care professionals need to do everything they can to prevent them.

Methods

To complete this project, various reliable and professional sources were utilized to gather information about pressure ulcers. The sources were found through the Northern Illinois University (NIU) library links, Ebsco-Host, and Google Scholar. When educating on pressure ulcer prevention, it is important to note the different stages of pressure ulcers and what classifies each stage to show this is not like any other wound. These wounds can be very deep and serious,
in some cases even life-threatening. Not only this, but in order to prevent pressure ulcers one should know where they often occur and by what forces. Pictures were found to aid in visuals and understanding of the content. Lastly, with the focus on pressure ulcer prevention, several different methods were explored with a final recommendation on the best practices being used based on clinical evidence. To conclude, the most evidence-based methods of prevention are recommended. This project was completed by finding multiple sources per week and working on one section at a time to provide a complete overview of pressure ulcers to then understand and educate on the best way to prevent them.

**Pressure Ulcer Development and Stages**

A pressure ulcer is also commonly known as a bed sore, which are areas of localized tissue damage that can even be as extreme as necrotic or dead tissue. Pressure ulcers are typically seen over bony prominences, where there is the most pressure on the skin. This happens by three primary methods: pressure, friction, and shear (see Appendix A). Pressure is caused from prolonged constant pressure to an area of the body that results in a decreased blood flow to the tissues (Bedsores, 2020). If blood flow is cut off, the patient will not get the essential oxygen or nutrients to their tissues, which can lead to tissue necrosis. Friction results when the skin is rubbing against something, commonly clothing or bedding. Patient can be more susceptible from tissue damage from friction is their skin is moist. Shear is when multiple surfaces move in opposite directions. One way to think about this is if a health care provider is adjusting the bed, a patient’s skin may stay in place and begin to pull when the head or foot of the bed is elevated (Bedsores, 2020).

Before a pressure ulcer develops there are several conditions that can place a patient at an increased risk. These conditions include but are not limited to: mobility issues or limited
mobility, incontinence, lack of sensory perception, poor hydration, poor nutrition, and any medical condition that can impact blood flow or the cardiovascular system (Bedsores, 2020). Additionally, there are bony prominences on the body where pressure ulcers are more likely to develop (see Appendix C). Health care providers should be mindful that these exist and where they are located. Bony prominences are locations on the body where the skin surface is close to the bones, such as the heels of the feet or hips. These areas of the body put pressure on the skin from the inside (the bones) and from the outside (the surface the body is resting on). The force between these two things can pinch the skin and lead to decreased blood flow causing an ulcer to form (Bedsores, 2020).

Pressure ulcers can be shallow or deep and have different components to them depending on the stage. There are five different stages of a pressure ulcer (see Appendix B). There are stages one thru four and the “fifth” stage is considered unstageable. To aid in determining the stage of the pressure ulcer, it helped to look at the different types of tissues: new epithelial tissue, granulation, eschar, and slough. New epithelial tissue is the formation of healing tissues in or around the ulcer. Granulation appears as new connective tissue and blood vessels that develop on the surface of the ulcer as it heals. Slough tissue is non-viable, usually moist and can have a soft, stringy, or mucinous texture to it. Lastly, eschar tissue on the other hand is dead/necrotic tissue that is usually black or brown and appears like a scab (Ayello, 2014).

Once a patient develops a pressure ulcer the true challenge begins. It has been shown to be more effective to prevent a pressure ulcer rather than trying to treat one. Pressure ulcers take time to develop, with signs of an ulcer forming occurring in the first four to six hours of development (Bedsores, 2020). While it only takes a few hours for a stage one pressure ulcer to begin to form, it takes months to treat especially in the later stages. For a stage three pressure
ulcer, it generally takes an average of one to three months to heal, and this time frame is increased for stage four wounds (Wound Source, 2019). Not only are pressure ulcers themselves hard to treat, but complications can arise because of them. Some complications include infection or osteomyelitis, an infection of the bone. For ulcers staged a three or four, the goal of treatment is to debride and dress the wound to promote optimal healing. Debridement is removable of non-viable or dead tissue to help accelerate and promote wound healing and can be done as often as necessary. If the pressure ulcer continues to worsen or is not healing properly with these treatments, then surgery may be indicated (Wound Source, 2019). Treatment in general for pressure ulcers is very expensive and will be later explored.

**Pressure Ulcer Prevention**

Across several articles there were different methods identified for preventing the formation of pressure ulcers. These methods will be explored individually and include at-risk identification, skin assessment, turning patients, and support surfaces. At-risk identification is one of the first ways to prevent patients from developing a pressure ulcer. This serves as prevention because health care providers will be able to identify the patients in their care more likely to develop a pressure ulcer. Once this is established, the health care provider- whether that be the nurse, doctor, or anyone else- can set special precautions in place for the particular patient to decrease their likelihood of developing a pressure ulcer (Ayello, 2007).

Frequent skin assessments have also been adopted by facilities to prevent pressure ulcer occurrences. Skin on patients should be assessed daily and this is something that patient can be taught to do at discharge. By doing skin assessments, nurses can stop a pressure ulcer before it potentially starts by noting any skin changes (Padula, 2015). During this skin assessment it is imperative to be especially keen on the skin at bony prominence since this is where pressure
ulcers are likely to occur. Good hygiene can also aid in prevention of ulcers (Reddy, 2006). Skin assessments should be completed per facility protocol or when there is any change in the patient’s condition.

Support surfaces can be used by patients to help reduce the amount of pressure faced by the body. There are two types of support surfaces used: static and dynamic. Static support surfaces include elements of foam, static air, gel, water, or can be a combination or gel and water (Padula, 2015). On the other hand, dynamic surfaces include elements of alternating air, low air loss, or air fluidized. One example of a dynamic surface being used is an alternating pressure low air loss mattress. These beds are used for patients who are bed bound and have limited mobility. By using these beds and rotating the patients frequently, the risk for these patients developing an ulcer is greatly reduced. This occurs because the air mattress takes unnecessary pressure off the patient’s body, therefore not restricting blood flow as much as the standard hospital bed (Defloor, Bacquer, & Grypdonck, 2005).

Turning patients has been proven to be one of the most effective ways to prevent patients from developing pressure ulcers. It is recommended that patients get turned at least every two hours (Gillespie, et al., 2014). Turning patients relieves the pressure on the skin causing blood to flow more freely, getting all the necessary nutrients and oxygen to the tissues to aid in wound prevention (Defloor, Bacquer, & Grypdonck, 2005). If blood flow can be maintained, it is less likely that a patient will eventually develop a bedsore. By turning or rotating a patient every two hours, the nurse ensures that not one area of the body is subjected to decreased blood flow for a long length of time. All areas of the body will rotate between where the pressure is, ensuring that every part of the body is being relieved during or after the two hours are finished and the patient is in another position. For patients that are mobile, they can readjust their body frequently to
regain blood flow to various parts of the body that may have been affected by their positioning (Soban, Hempel, Munjas, Miles, & Rubenstein, 2016).

As the three primary methods of pressure ulcers are pressure, friction, and shear, it is important to reduce friction and shear as well. To reduce friction and shear in patients, healthcare providers can protect vulnerable areas such as the heels or elbows with padding (Carver, 2016). Types of padding include transparent, hydrocolloid, composite, or foam dressings (see Appendix D). Not only this, but support surfaces can individualize care for the patient’s particular needs. Positioning devices when sitting in a wheelchair can reduce shear from sliding. The most important way to reduce friction in shear in patients is to be cognizant of the patient’s anatomy and to always use the draw sheet for repositioning or transfer: dragging the patient can cause harm (Carver, 2016).

**Discussion**

The best way to prevent pressure ulcers through evidence-based practice is by implanting a “care bundle” and turning patients every two hours as recommended by the Agency for Healthcare Research and Quality (Berlowitz et al., 2014). A care bundle encompasses best practices that when used in combination lead to better patient outcomes. It is recommended to use this in all health care setting to prevent pressure ulcers (Yılmazer & Tuzer, 2019). The three components in the care bundle are a comprehensive skin assessment, standardized pressure ulcer risk assessment, and care planning and implementation to address areas of risk (Yılmazer & Tuzer, 2019). Through the use of the care bundle, there will be a standardized method throughout the health care setting for pressure ulcers. Standardization leads to improved quality of care, improved patient safety, and reduced costs (Berlowitz, 2014). In 2006 he AHRQ reports that in the United States pressure ulcers cost about nine to eleven billion dollars per year for those older
than 18 years. Not only this, but each pressure ulcer adds on average $43,180 to a hospital stay (Russo, Steiner, Spector, 2006). However, more recently data shows the United States spends about $26.8 billion a year on treatment of pressure ulcers (Morse, 2019). Of the $26.8 billion a year spent on pressure ulcer treatment, $22 billion is spent because pressure ulcers are the secondary diagnosis: the exact reason hospitals eat the cost of it (Morse, 2019). Therefore, if pressure ulcers are prevented, hospitals in the United States would be saving billions of dollars each year.

**Conclusion**

Martin Burns the CEO of Bruin Biometric explains that pressure ulcers are the main cause of patient harm in a medical facility (Morse, 2019). He continues on explain how other issues that put patients at risk of harm are decreasing. These issues include adverse drug events and hospital acquired infections. Cancer is a topic that many people hear about, and how cancer kills many of its patient. However, pressure ulcers alone kill an estimated 60,000 Americans per year: more than all types of cancer combined (Morse, 2019). The statistics show how dangerous pressure ulcers are and how important it is for healthcare providers and nurses to prevent their occurrence and development. By using a care bundle nurses can plan interventions to prevent pressure ulcers development in patients. The purpose was to combine best practices of preventing ulcers into one initiative. When this bundle is further combined with turning patients every two hours to further relieve pressure on vulnerable parts of the body, occurrences in patients decreased (Berlowitz et al., 2014).
References


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Vitality Medical (n.d.) Wound dressings. Retrieved from
https://www.vitalitymedical.com/wound-dressing.html

validation study. Retrieved from https://www.o-wm.com/article/pressure-ulcer-prevention-care-
bundle-cross-sectional-content-validation-study
Appendix A: Primary Methods

(Pressure Ulcers, 2018)
## Appendix B: Pressure Ulcer Staging

<table>
<thead>
<tr>
<th>Stage of Ulcer</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Stage 1</td>
<td>Intact skin that is usually over a bony prominence and discolored but is non-blanchable. The skin can also be warm, hard, pain, or have edema noted.</td>
</tr>
<tr>
<td>Stage 2</td>
<td>A partial thickness loss of the skin. This is demonstrated by a shallow open wound that can be red or pink in color. This stage does not present with slough tissue. This can also be an intact or ruptured blister.</td>
</tr>
<tr>
<td>Stage 3</td>
<td>A full thickness skin/tissue loss. Subcutaneous fat can be visible, but bone, muscles, and tendons are not at this stage. Slough can be present.</td>
</tr>
<tr>
<td>Stage 4</td>
<td>A full thickness tissue loss that has bone, tissue, and/or muscle exposed through the skin. Slough or eschar can be present.</td>
</tr>
<tr>
<td>Unstageable</td>
<td>A full thickness tissue loss where the depth of the wound cannot be determined because it is greatly covered with slough and/or eschar. An unstageable ulcer can also be classified as an ulcer that cannot be staged because there is a device in place that cannot be removed.</td>
</tr>
</tbody>
</table>

(Ayello, 2014).
Appendix B: Pressure Ulcer Staging Continued

A: Stage 1

B: Stage 2

C: Stage 3

D: Stage 4

Unstageable

(Pressure Ulcers, 2018)
Appendix C: Bony Prominences

(Pressure Ulcers, 2018)
Appendix D: Wound Dressings

(Vitality Medical, n.d.)