

PRESSURE ULCERS AND THEIR IMPACT ON QUALITY OF LIFE

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Pressure ulcers are one of most dominant problems that occur in patients with mobility limitations. Such wounds can produce pain and deteriorate the underlying condition. Sometimes, they can be even vitally threatening, and their treatment can impose financial burden for both patient's family and society. Pressure ulcers are the consequence of a prolonged pressure on the skin above bone prominences, and its location depends on patient's position (lying, sitting).

The impact of pressure ulcers on the quality of life is significant, considering their influence on physical, psychological, emotional, spiritual, social and financial dimension of life.

Health care professionals involved in pressure ulcers treatment and care at all levels have to recognize the impact of this problem on patient's quality of life. The impact is significant, long-term and it depends on patient's individual characteristics. Therefore, treatment and care should be tailor-made for each patient. *Acta Medica Medianae 2014; 53(4):75-80.*

Key words: pressure ulcers, stages, quality of life

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Introduction

Pressure ulcers are one of most dominant problems reported by patients with mobility limitations. Those wounds can produce pain and deteriorate the underlying condition. Sometimes, they can be even vitally threatening, and their treatment can impose financial burden for both patient's family and society.

This problem also existed in the past. There is evidence of the presence of ulcer wounds in Egyptian mummies; in XVI century, a French surgeon Ambrose Pare described pressure ulcer as an incurable disease which can be treated with resting, exercise and adequate nutrition. In his study about skin gangrene, Wolleben (1777) emphasized that pressure ulcer can be treated only with long-term lying. Groth (1944) concluded that local tissue ischaemia is not caused only by external pressure, but also by tissue damage.

Presence of pressure ulcers has impact on hospital stay, it raises costs of treatment and care, and increases the risk of infections. Adequate nutrition and care, patient and family edu-

cation and prevention procedures can minimize the risk of pressure ulcers (1).

Epidemiology

The Fifth National Pressure Ulcer Prevalence Survey conducted in the USA in 1999 among hospital patients found an annual prevalence rate of 14.8%, mostly in Intensive Care Units and among patients aged 70-79 years. Long-term setting prevalence was 11-30%. Annual prevalence in neurologically damaged patients was 7-8%, but the long-term risk of pressure ulcers was 25-85% (2).

European cross-sectional study revealed that prevalence of pressure ulcers was 18% among hospitalized patients. An Irish study conducted among 297 long-term patients confirmed the prevalence of 12.5%. Pressure ulcer can be more frequently found in orthopedic units and among elderly patients with limited ability of repositioning (neurologically damaged patients). Changes in demographic structure of populations and increased number of elderly can lead to increase in the incidence and prevalence of pressure ulcers (3).

Pressure ulcers can pose substantial financial burden for the health system. Bennett et al. (4) conducted a research in 2004 and reported that pressure ulcers treatment costs account for 4% of the total health care costs in Great Britain, between 1.4 and 21 billions of pounds, respectively. In those estimations, the influence on the

quality of life in terms of pain, depression and social isolation was excluded (4).

Mechanism of pressure ulcers

According to the International Classification of Diseases, pressure ulcer can be defined as a bedsore (decubitus pressogenes), or decubitus ulcer or decubitus.

Pressure ulcer represents localized tissue damage due to pressure or friction of skin or underlying tissue. If the pressure remains for a longer time (averagely for two hours) and have sufficient power, it leads to damage and necrosis of cells and tissues, due to compromised blood and lymph flow, and consequently insufficient level of oxygen and nutritive substances, and on the other hand, collection of harmful metabolism products (5).

Localization

Pressure ulcers can be localized on any part of the body, but the most common sites are:

- sacral area -above sacrum, hips, ischium
- spine neck, back
- scapular margins
- ribs
- legs -malleolar, heel, patellar area
- arms -elbows, posterior side of arms; wrist
- head -occiput, ears, face, forehead, nose, chin, cheeks.

In patients confined to bed, bedsores are most often located above the sacrum, hips, heels, ankles and vertebrae, while in sitting patients they are common for buttocks and elbows. Pressure ulcers may also occur in inappropriate plaster immobilization (6).

Risk factors for development of pressure ulcers

There are modifiable and non-modifiable risk factors for pressure ulcers. Limited mobility and absence of mobility are the most important risk factors for creation of bedsores. Certain diseases or conditions lead to limitations in mobility and they represent substantial risk factor for pressure ulcers, such as neurological illnesses or injuries of the spinal cord or locomotor system or neurologic disorders. Therefore, it is necessary to maintain and adjust the level of activities of such patients.

Patients with altered sensory functions are unable to react on intrinsic or extrinsic factors, and they may develop pressure ulcers. Such patients need implementation of preventive measures for pressure ulcers.

Malnutrition is a result of insufficient intake of nutritives (primary malnutrition) or a consequence of digestive system illnesses, metabolic disorders, cancer etc. (secondary malnutrition).

Along with weight loss, malnutrition causes altered quality of skin and deeper layers, anemia, changes in blood pressure, altered immunity, hypovitaminosis and other disorders that affect faster development of pressure ulcer and slower wound healing.

Incontinence is usually a result of mechanical or neurological disorders. Leakage of urine or feces may lead to constant moisture of skin and maceration, which is convenient for development of pathogenic microorganisms.

Age is also a risk factor for pressure ulcers. Aging affects the muscle loss, changes in structure and amount of collagen and elastic fibers in skin; mobility is usually limited, very often malnutrition is present, as well as comorbidity. All those changes are risk factor for pressure ulcers.

Dehydration is a consequence of excessive loss of body water. Recognizing symptoms of dehydration and rehydration is essential in prevention of pressure ulcers. Loss of body water can be accompanied with hyponatremia. During 24 hours, it is common to lose 700-1000ml of water through lungs (respiration), skin (sweating), feces and urine (7).

Classification of pressure ulcers

Pressure ulcer is characterized by the loss of tissue due to molecular destruction and it progresses in four stages.

Stage one is characterized by redness of skin of localized area which does not disappear on pressure. Skin is intact, and if the pressure stops, the redness will disappear in a few hours. If the pressure remains, it will progress in the second stage.

Stage two is characterized by tissue damage and blisters, with partial skin loss. This ulcer is shallow and reversible, meaning that it can heal when pressure is over.

In stage three, all skin layers are affected and wound can progress to subcutaneous tissues and fascias which may become the focus of infection. The ulcer presents clinically as a deep crater and may undermine adjacent tissue.

In stage four, ulceration is more extensive, so it can lead to destruction of fascia, tendons, muscles, bones or supporting structures (e.g., tendon, joint capsule). In this stage, wounds are most often contaminated and can vitally jeopardize patient's life (8).

Braden scale is used for pressure ulcers risk assessment and staging using evaluation of those areas: sensory perception, moisture, activity, mobility, nutrition and friction and shear. Lower score indicates the greater pressure ulcer risk (Table 1.) (9).

Pressure ulcers management

By the elimination of the underlying cause, pressure is the first step in pressure ulcer management. This can be done by a bedfast patient on the surface which can maintain tissues

Table 1. Braden Scale for predicting pressure ulcers risk

Risk factor	Score/description							
Sensory perception	1. completely limited	2. very limited	3. slightly limited	4. no impairment				
Moisture	1. constantly moist	2. often moist	3. occasionally moist	4. rarely moist				
Activity	1. bedfast	2. chairfast	3. walks occasionally	4. walks frequently				
Mobility	1. completely immobile	2. very limited	3. slightly limited	4. no limitations				
Nutrition	1. very poor	2. probably inadequate	3. adequate	4. excellent				
Friction and shear	1. problem	2. potential problem	3. no apparent problem					
Total score								

Source :8

Severe risk ≤ 9
 High risk 10-12
 Moderate risk 13-14
 Mild risk 15-18

at pressures below 30mm Hg. These specialized surfaces include foam devices, air-filled devices, and low-air loss beds. Regardless of the choice of support surface, turning and repositioning the patient is essential for prevention and treatment. This should be performed every 2 hours, even in the presence of a specialized surface or bed. The wound and surrounding skin must be kept clean and free of urine and feces through frequent cleansing and the establishment of a bowel and bladder regimen. Bacterial contamination must be assessed and treated by adequate antibiotics based on antibiogram (10).

Wound care depends on the stage of the wound. A stage I lesion may require no care, while in stage II hydrocolloid occlusive dressing which facilitates reepithelization is suggested. For more advanced ulcers, wounds have to be treated with isotonic sodium chloride solution or dilute sodium hypochlorite or hydro gels. These dressings are not a substitute for sharp debridement in severely contaminated wounds with necrotic material, and if debridement is not performed it can lead to sepsis, myonecrosis, necrotizing fasciitis, and gangrene. Spasticity should be relieved with sedatives and flexion contractures surgically.

When medical management has been optimized, many stage I and stage II pressure ulcers heal spontaneously, while for stage III and stage IV ulcers surgical approach is almost inevitable.

Debridement is a surgical procedure with aim to remove all devitalized tissues that represent a reservoir for bacterial contamination and possible infection. Urinary or fecal diversion may be necessary to optimize wound healing, considering the fact that many of ulcer patients are incontinent, and there is a possibility of contamination of wound with urine or feces. Surgical treatment of flexion contractures contributes to better positioning of patients, while

amputation may be necessary for a non-healing wound.

Reconstruction of a pressure ulcer is aimed at prevention or treatment of osteomyelitis and sepsis, reduction of fluid and protein loss through the wound, and prevention of future malignancy (11).

In the postoperative period, patients should be positioned on a specialized support surface for at least 6 weeks, and after that pressure on a surgical site should be introduced gradually, no longer than two hours. Skin care should be performed on daily basis, by performing inspection, washing with soap and water and complete drying.

Follow-up should be performed every 3 weeks for the first several months. The interval may be increased to every 6 months and then annually. Patients should carry on with frequent repositioning, by themselves or their support. Patients with maintained upper extremity function should lift themselves from their wheelchair for at least 10 seconds every 10-15 minutes, while patients in bed should be repositioned at least every 2 hours. Besides all the aforesaid, specialized support surfaces on beds and wheelchairs is still required (12).

Quality of life

Traditionally, focus of medical research was aimed to the nature of disease and the development of successful treatment interventions. However, in the last three decades, changes of traditional role of health care professionals combined with patient empowerment raised an interest for quality of life. Current trends in health care services have to demonstrate health and social gains with quality of life in center (13).

When we discuss the quality of life, clinical approach in defining health as the absence of illness cannot be used. Quality of life is closer to WHO definition of health in Resolution „Health for

all by the year 2000" where health is defined as ability for leading economically and socially productive life. A concept of quality of life is broader than health and it relates to active, fulfilled and productive life through the whole lifespan.

Quality of life includes all aspects of well-being, including happiness and satisfaction with life in full. According to many authors, quality of life is a complex function and it involves few dimensions. For quality of life assessment, Spitzer recommends at least five aspects:

- physical well-being
- social well-being
- mental status
- severity of symptoms
- perception of health.

Physical and emotional well-being have a direct impact on quality of life, while social function is not relevant for health, but it is a very important aspect of the overall quality of life. Perception as subjective experience of health is an important indicator and it mostly correlates with clinical status (14).

During the last thirty years, Health Related Quality of Life- HRQoL determinants have been developed with the aim to include the aspects of the quality of life related to health, both physical or mental. On the individual level, this includes physical and mental health perceptions, including health risks and conditions, functional status, social support, and socioeconomic status. Nevertheless, some health aspects do not have direct impact on the quality of life at the moment of assessment - for instance, illness, exposure to risk factors or family history that is unknown to the individual without symptoms (15).

Health-related quality of life can be related to „impact of disease and treatment on disability and everyday living, or to patient's self-assessment of health in the context of living fully productive life". In 1993, Patrick and Ericson defined this indicator as „value that relates to extension of life altered due to impaired health", while Franks and Moffatt recorded that if a person suffers from chronic wounds or injuries or feels sick, he/she will most probably experience „pain or discomfort or changes in usual functioning or sense". That latter is the essential meaning of health-related quality of life - individual experience of well-being is more important than something that health care provider considers to be important for the patient. Health-related quality of life is influenced by personal characteristics - gender, age, educational status, cultural characteristics, ethnicity etc (16).

Discussion

There are few studies related to pressure ulcers and quality of life. Langemo *et al.* (17) conducted a qualitative study and interviewed 8 patients - 4 with current pressure ulcers and 4 who had pressure ulcers healed at least 6 months prior to that study. All pressure ulcers were stage II-IV, mostly at stage IV; 6 respondents had multiple pressure ulcers; there were 7 male and

1 female respondent, aged 27-52 years (M=38). Evaluating underlying disease, it was revealed that 4 respondents had a spinal cord injury.

Respondents described the impact of pressure ulcers on their quality of life and necessary life changes, impact on psychological component of health and pain (17).

Although there is no evidence about the impact on the overall health-related quality of life, in the study conducted among patients with leg ulcers it was concluded that patients averagely spend 1.5-2 hours daily, 8% of wakeful hours respectively, on thinking about their wounds (18).

Patient's concerns whether wounds would heal, along with an expectation that it will eventually happen, in certain studies have been assessed. Patients need hope that the ulcer will heal, that pain, odor, and treatments will end, and that they will eventually regain their former lives. When pressure ulcer persists for 6 or more months, pessimism can prevail, impacting the patient's compliance, nutrition, depression, and healing (18). In the Langemo *et al.* (17) study, most respondents could not define the time frame for healing of the pressure ulcers, which led to frustration, depression, and restrictions in ADLs.

Pressure ulcer patients are hard to handle with immobilization which is necessary for the treatment. One of contributing symptoms that deteriorate patient's health is fatigue due to sleep disorders. Social isolation because of long hospital stay, with sufficient number of contacts with other people has negative impact on life of the patients (19).

Pain is inevitable in pressure ulcer patients. There is evidence that 84% of ulcer patients staged II and IV feel the pain even while resting, and 18% of patients reported unbearable pain. Pain is also present in 88% of patients while performing activities of daily living, including dressing changing (20).

Presence of microorganisms in wound can produce characteristic odors. In patients with excessive exudation followed by odor, some psychological reactions may occur, such as sense of guilt, embarrassment or isolation (20,21).

Pressure ulcers have significant impact on patient's finances, considering the fact that they have to be on a long sick-leave, costs of inpatient and outpatient and in some cases professional reorientation (21).

Conclusion

The impact of pressure ulcers on quality of life is significant, considering their influence on physical, psychological, emotional, spiritual, social and financial dimension of life.

Health care professionals included in pressure ulcers treatment and care at all levels have to recognize the impact of this problem on patient quality of life. The impact is significant, long-term and it depends on patient's individual characteristics. Therefore, treatment and care should be tailor-made for each patient.

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DEKUBITALNE RANE I NJIHOV UTICAJ NA KVALITET ŽIVOTA

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Dekubitalne rane jedan su od najvećih problema sa kojima se sreću bolesnici koji imaju ograničenu pokretljivost. Ove rane mogu biti bolne i pogoršavati osnovnu bolest, čak, ponekad, mogu i vitalno ugroziti bolesnika, a njihovo lečenje predstavlja dodatno opterećenje za porodicu i društvo. Nastaju kao posledica konstantnog pritiska na kožu iznad koštanih prominencija, a lokalizacije dekubitalnih rana zavise od položaja bolesnika (ležeći, sedeći).

Uticao de kubitalnih rana na kvalitet života je značajan, s obzirom da ova oštećenja utiču na fizičku, psihološku, emocionalnu, spiritualnu, socijalnu i finansijsku dimenziju života.

Zdravstveni radnici na svim nivoima zdravstvene zaštite koji učestvuju u lečenju i nezi dekubitalnih rana moraju prepoznati uticaj ovog oboljenja na kvalitet života, a lečenje i nega moraju biti prilagođeni potrebama svakog bolesnika ponaosob. *Acta Medica Medianae 2014;53(4):75-80.*

Ključne reči: dekubitalna rana, stadijumi dekubitalnih rana, kvalitet života