

Nutritional supplements as effective as full ward diet nursing essay



Pressure ulceration has become a common health issue in hospitalized patients and elderly patients living in a long-term care facility. It can be contributed by various factors such as aging, poor nutrition, immobility, and cognitive impairment. A literature review was conducted based on five published research articles. The aim was to investigate the therapeutic relationship between nutritional support and pressure sores healing. The result indicated significant improvement in pressure ulcer healing.

Background

Aim of the paper

The aim of this study is to critically review current literature in order to evaluate the effectiveness of oral nutritional supplement (ONS) in addition to regular food intake in the prevention and treatment of pressure ulcers.

Purpose of the paper

The purpose of the study is to evaluate whether nutritional supplement helps cure pressure sores or not.

Scope of the paper

The study is based on research of a variety of existing research articles, journals, surveys, and clinical trials related to pressure ulcer throughout the global. It mainly focuses on individuals aged 65 and over from different continents.

Literature Search Strategy

The literature review was designed to assess published studies only. The initial search terms included pressure ulcer, nutrition, elderly, protein,

arginine, zinc, vitamin C. The time period of the search covered articles published from 2000 to 2011 in English. The major databases used are CINAHL, Pubmed, and Cochrane Collaboration. An assignment marking guide was used to evaluate methodological quality of selected studies and gather useful information at the same time. Research design, description of intervention, outcome measures, results and author conclusions were included in the marking guide.

2. 0 Evaluation of the Literature

2. 1 Introduction

“ Pressure ulcers, also referred to as pressure sores, decubitus ulcers or bedsores, are defined as an area of localised damage to the skin and underlying tissue caused by pressure, shear force, friction, moisture, and/or a combination of these factors.” (Crowe and Brockbank 2009) It commonly occurs in hospitalized patients and elderly adults living in aged care facilities due to impaired mobility, paralysis and malnutrition. This study only focused on the relationship between malnutrition and pressure ulceration. For elderly people specifically, factors contributing to malnutrition include poor appetite, impaired cognition, depression, dependence on assistance with eating, and medications that cause gastrointestinal upset. (Heyman et al. 2008)

Therefore, strategies and nursing interventions for adequate nutritional intake have become essential proportion of care for the elderly not only for pressure ulcer management, but also for their overall well-being. Supplying adequate nutritional supplements have been acknowledged to be beneficial in addition to repositioning and wound dressing since they can provide extra nutrients to strengthen tissue resistance and promote tissue repair.

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(Posthauer 2006) This review evaluated the clinical evidence supporting the use of ONS is beneficial for the elderly with existing pressure sores as part of their management. Five related article consisted of both clinical trials and literature reviews were selected presenting various perspectives. One of these studies provided Level I evidence while other four provided evidence between Level II and level IV.

2. 2 Critical Review

Level 1 evidence was provided by a systematic review by Holm, Mesch, and Ove (2007) This study conducted 16 peer-reviewed articles published between 1995 and 2005, with a combination of qualitative and quantitative analysis of information. General speaking, the reviewer pointed out that pressure ulcer healing for patients aged 65 and over is strongly associated with individual's nutritional status as well as strategies and nursing interventions implemented by healthcare workers when handling pressure ulcers. First of all, it revealed the significance of nutrition for elderly patients with pressure sores in promoting wound healing and preventing deterioration. Meanwhile, it indicated that the use of pressure relieving mattresses and repositioning were the most commonly used measures for pressure area care. It also reported potential factors such as weight loss, dysphagia, catheters and connection to different kinds of monitoring equipment, which might result in prolonged ulceration. Moreover, the financial impact on the patient and family related to costly treatment was also discussed in this review. When selecting the articles, the reviewer excluded studies that did not comply with the aim of the review or studies contained subjective opinions. It is reasonable to consider this study to be

comprehensive and convincing since it provided logical arguments supported with figures and data collected from those 16 published research articles. The limitation of this study was that the articles selected were published from 1995 to 2005, so that the information gathered might not be up-to-date. Although the study demonstrated the connection between nutrition and pressure ulcer healing, it did not involve the role of protein, arginine, vitamin C and zinc in specific. The results of this study were consistent with the setting of this academic paper because they both focused on patients aged 65 and over. In addition, this article is relevant to the PICO question since it talked about the importance of nutrition among elderly patients and its relationship with pressure sores management.

The goal of the research paper by Heyman et al. (2008), which provides level III evidence, was to examine the effects of oral nutritional supplements enriched with protein, arginine, vitamin C and zinc in dietary management of pressure ulcers and chronic wounds. This open multicentre trial was conducted among 61 institutional care facilities in Belgium and Luxembourg for a nine-week period and 245 participants, with a mean age of 80, were selected randomly with no exclusion criteria. Each patient received three servings of ONS per day accompanied with standard pressure area care. The result was a 60% reduction in pressure ulcer area after nine weeks. The primary limitation of this study was that it neither attempted to blind nor carry out randomized controlled trials. Hence, factors affecting pressure ulcer healing other than malnutrition had not been eliminated which reduced the reliability of the result. Another limitation was that the exudate levels were not measured objectively, and ruler was used to measure the size of

the wound instead of planimetry. All these factors might lead to inaccurate outcomes. Nevertheless, the result of this study was supported by three other studies. These studies indicated that ONS enriched with arginine, zinc and antioxidant vitamins helps accelerate pressure ulcer healing rates.

(Benati et al. 2001; Desneves et al. 2005; Soriano et al. 2004)

The study by Cereda et al. (2009) aimed to evaluate the effectiveness of a disease-specific nutritional treatment enriched in protein, arginine, zinc, and vitamin C compared to full ward diet for enhancing the rate of pressure ulcer healing. It was a twelve-week randomized controlled trial which provided level I evidence. It involved 28 elderly subjects with Stage II, III, and IV pressure ulcers of recent onset from four residential care facilities in Italy. Participants were divided into two groups and both groups received exactly same amount of daily nutritional support. However, one of the groups was provided with standard full ward diet while the other group was administered a 400-mL oral supplement or specific enteral formula enriched with protein, arginine, zinc, and vitamin C in addition to the standard diet. The result reflected that there was a 72% decrease in pressure ulcer area after 12 weeks of receiving ONS. This study concluded that disease-specific nutritional support is feasible and beneficial in promoting the healing of pressure ulcers.

Furthermore, a secondary research article written by Crowe and Brockbank (2009) investigated the role of nutrition in the prevention and treatment of pressure ulcers. The function and mechanisms of protein, arginine, and micronutrients in wound healing process had been discussed respectively in this study. It also cited a variety of existing studies to support its arguments. <https://assignbuster.com/nutritional-supplements-as-effective-as-full-ward-diet-nursing-essay/>

The study concluded that high-protein oral nutritional supplements played an essential role in minimizing the incidence of pressure ulcers in susceptible elderly patients. The role of arginine, vitamin C and zinc in pressure ulcer healing, on the other hand, was not very clear stated by Crowe and Brockbank due to limitation in sample size and heterogenous study design of current studies. Although some studies reported that arginine, Vitamin C and zinc can promote muscle and collagen synthesis which increase the strength of the wound and help the body maintain a healthy immune system (Fleishman 2005), confirmatory studies are needed to support current clinical evidence. The major down side of this study was absence of critical analysis of information gathered from clinical trials used. Nevertheless, nutritional support was considered to be beneficial and effective in enhancing pressure ulcer healing after all.

In addition, the conclusion that nutritional supplement rich in protein speeded up pressure ulcer healing rate was consistent with another study by Breslow et al. (1993) Breslow et al. (1993), another level III evidence, investigated 28 malnourished elderly patients living in residential care facility with existing pressure sores for eight weeks. It aimed to evaluate the impact of dietary protein on healing of pressure ulcers in malnourished patients. The result indicated that participants who received supplemental nutritional formulas containing 24% protein displayed a faster rate of wound healing in contrast to those received formulas containing 14% protein. Therefore, it was reasonable to believe that supplemental protein aided in pressure ulcer healing process. However, because of the time of this study

being conducted, the novelty and reliability of the information provided might be doubted.

Based on the findings of this review, additional nutritional supplement enriched with protein, arginine, vitamin C and zinc had been proved to be effective in promoting pressure ulcer healing. The implementation of specialised nutritional support was recommended for elderly patients suffering from chronic pressure ulcers. Moreover, patients having difficulty swallowing, cognitive impairment are at risk of malnourishment so nutritional supplement should be considered despite of no existing pressure ulcer. (Cereda et al. 2009) Besides, although nutritional supplementation aided the wound to heal, it was not an entire part of pressure ulcer management. In order to prevent and treat pressure sores quickly and effectively, it is essential to combine nutritional support with wound management, use of pressure-relieving devices as well as repositioning techniques. (Heyman et al. 2008)

3. 0 Evaluation of the Main Research Article

3. 1 The study overview

The study, “ Benefits of an oral nutritional supplement on pressure ulcer healing in long-term care residents”, by Heyman et al. (2008) aimed to investigate the effects of combine oral nutritional supplement high in protein, arginine, vitamin C and zinc with standard care on the healing of pressure ulcers in nursing home residents compare to standard care solely. This nine-week trial was conducted in Luxembourg and Belgium and 245 patients with grade II-IV pressure ulcers were involved. During the study,

participants were provided with the ONS daily for nine weeks, in addition to their normal diet or enteral feed. Standard pressure care was provided to each patient. Pressure ulcer area (mm²) and condition were assessed after three and nine weeks. (Heyman et al. 2008) Patients received 200ml ONS per daily which contained 46g protein, 6.9g arginine, 575mg vitamin C, 87mg vitamin E and 21mg zinc. The result indicated that there was a remarkable decrease in pressure ulcer area, with 53%, at the end of the trial. Complete wound closure occurred after three and nine weeks in 7% and 20% of the pressure ulcers respectively.

3. 2 Type of article and level of evidence

This article is a quantitative primary research article because all the data was collected by the authors themselves by performing a clinical trial. It is a case control study rather than a randomized controlled trial since it involved large number of subjects so that the randomness and suitability of participants selected diminished. Nevertheless, the study demonstrated comparison by monitoring changes of conditions and improvements of the wound. The pressure ulcer area was measured three times throughout the trial: at the beginning, after three weeks, and at the end. Therefore, this study provided level III evidence. (The Royal Melbourne Hospital 2009)

3. 3 The study design

This was an open multicenter case-control study, in which 245 patients with different grades of pressure ulcers participated. Three servings of oral nutritional supplements were provided for every patient and wound healing process was monitored and assessed by measuring pressure ulcer area using rulers. Patient medical history and characteristics of existing wounds were <https://assignbuster.com/nutritional-supplements-as-effective-as-full-ward-diet-nursing-essay/>

gathered to be baseline information at the beginning of the trial. " All measurements were performed by a single practitioner at each center" in order to minimize subjectivity of data collected. (Heyman et al. 2008)

3. 4 Statistical analysis

" Data are expressed as mean \pm standard deviation. Data were statistically analysed using ANOVA. Pressure ulcer data were log-transformed using a mixed-effects model to compare changes in pressure ulcer area over time. SGS Life Science Services - Clinical Research (Bierges-Wavre, Belgium) performed the data entry, verification and statistical analysis." (Heyman et al. 2008)

3. 5 Outcomes/Results for Nurse and Patient

During the study period, the average intake of the ONS recorded was 2.3 ± 0.56 servings per day. After three weeks, the mean pressure ulcer area decreased from $1580 \pm 3743\text{mm}^2$ to $1103 \pm 2999\text{mm}^2$ and further reduction displayed to $743 \pm 1809\text{mm}^2$ at the end of the trial, a 53% decrease compared to baseline. Additionally, " Complete wound closure occurred after three and nine weeks in 16 (7%) and 49 (20%) of the pressure ulcers respectively." There was also a remarkable decline in exudates levels. " At baseline, they were reported as mild, moderate and severe in 54 (33%), 61 (25%) and 32 (13%) of the pressure ulcers respectively, while after nine weeks this had reduced to 81 (22%), 34 (14%) and 10 (4%) respectively." (Heyman et al. 2008) Also, the oral nutritional supplements were accepted by most of participants. Eight out of ten patients did not complain about being given three servings per day and roughly 80% of the patients drank more than half of the ONS at each serving. On the other hand, <https://assignbuster.com/nutritional-supplements-as-effective-as-full-ward-diet-nursing-essay/>

in ten health practitioners involved in this study, nine of them expressed that they would use ONS as part of their pressure ulcer management regimen.

(Heyman et al. 2008)

3. 6 Limitations and Gaps

Although the study involved large number of participants which roughly reflect the nursing-home population of Luxembourg and Belgium, there was no excluded criteria when selecting the participants. As a consequence, various factors such as medical history of diabetes or peripheral vascular disease can prolong wound healing and influence the outcome of the study.

3. 7 Recommendations for Further Research

The essentiality of conducting further studies has been pointed out to evaluate whether the implementation of oral nutritional supplements is cost-effective and suitable for all patients with pressure ulcers.

4. 0 Conclusion

Based on the findings from studies provided above, it is reasonable to consider the use of oral nutritional supplements enriched with protein, arginine, vitamin C and zinc as an effective and beneficial intervention in pressure ulcer management. Nevertheless, it is important to administer the ONS combined with other interventions including appropriate wound management and regular repositioning to promote pressure ulcer healing.