

Decubitus Ulcers: General Cost Effective Guidelines for Patients at Long Term Care Centers and Skilled Nursing Facilities

In America there is high demand for long term care centers (LTCs) and skilled nursing facilities (SNFs) 2. By 2060 nationally the population of adults 65+ is expected to increase to 94.7 million people; it is foretold that without enhancing/supporting the workforce within LTC and SNFs many people will lack quality care 2. Decubitus ulcers pose huge risks to patients by significantly increasing Morbidity, Mortality, and decreasing the quality of life for patients at LTCs and SNFs 1, 4. Decubitus ulcers that become gangrene have a one year mortality rate >50% 6. In America a fact sheet produced by the National Pressure Injury Advisory Panel (NPIAP) states that there are 2.5 million cases per year with an incidence rate of 20%-30% in all SNFs 5. The NPIAP estimates that it costs \$75,000 - \$150,000 per patient to treat a stage 3 or 4 decubitus ulcer and that overall acute costs of treatment are estimated to be \$26.8 Billion; making up 2.5% of all wasteful spending caused by failures in the healthcare system 5. A newer but expensive form of treatment for decubitus ulcers in zinc deficient patients is intravenous zinc infusions of 50-100 mg/d 4. Another novel treatment for older patients with hypercatabolism that have pressure ulcers ≤8 cm² is 10g/day supplementation of ornithine alpha-ketoglutarate (OKG) 4. We are fortunate to live in an international society that values innovation in the treatment of decubitus ulcers; the reality though is that medicare will not cover the costs of novel treatments in many LTCs and SNFs. Until an interdisciplinary team of healthcare workers can work with private and federal insurances to advocate for the coverage of novel decubitus ulcer treatments the current standards of care for treating and preventing decubitus ulcer development needs to be reviewed. It has been stated that "any intervention that may assist to avoid pressure ulcers or to treat them may be important to decrease the cost of pressure ulcer care and increase the life quality of affected individuals" 4.

Patients experiencing neurological disease, cardiovascular disease (CVD), prolonged anesthesia, dehydration, malnutrition, hypotension, patients recovering from surgery, patients with low serum albumin, and patients ≥ age 65 are all at an increased risk of developing decubitus ulcers 4, 7. Providing preventative nutritional care to patients who are experiencing dehydration, hypotension, CVD, neurological disease, prolonged vomiting, prolonged diarrhea, fever, profuse sweating, caloric malnutrition, protein energy malnutrition (PEM), vitamin deficiency, anemia, and/or patients recovering from surgery may help reduce the risk of skin breakdown 1, 7. Putting a patient experiencing anemia or experiencing a condition listed above that puts them at risk of decubitus ulcer development on a multivitamin with minerals (MVM) is a more cost efficient way to supply a patient with B vitamins, Vitamin C, Vitamin E, Vitamin D, Vitamin A, Magnesium, Zinc, Selenium, and Manganese; these are all vitamins/minerals that are important for immune regulation and stabilizing/promoting skin integrity 4, 1. Manganese and Zinc in particular are very important minerals in the prevention/treatment of decubitus ulcers as Manganese helps regenerate tissue and Zinc is an antioxidant that promotes the production of collagen 4. Prescribing fortified foods and Rena-Vite for a patient experiencing anemia of chronic disease related to hemodialysis (HD) in end stage renal disease (ESRD) may be an effective decubitus ulcer preventative plan that gives patients on HD access to vitamins/minerals without risking stone formation and/or overworking their kidneys. Correctly prepared/served fortified foods should contain minerals (Levings, 2018). It has been reported that a serum albumin level <3.1g/dL was predictive of pressure ulcer development 4. This is most likely because patients with low serum albumin are at an increased need for some form of Zinc supplementation to prevent decubitus ulcer incidence; Zinc is primarily transported by albumin in the blood, therefore patients experiencing hypoalbuminemia need to be prescribed some form of mineral supplementation or fortified food that provides more Zinc to keep skin intact 4. Patients at risk of skin breakdown should be on a preventative plan that supplies 30-35 kcalis/kg of calories, 30-35 ml/kg of fluid, 1.2-1.5g/kg of protein, access to prescribed fortified foods, access to a

MVM, and/or access to a protein supplement 4, 1. Patients on fluid restriction due to HD should be closely monitored for edema, dehydration, and fluid retention between HD sessions. Special preventative attention should be shown to patients on HD to make sure they are prescribed and/or have access to fortified foods, Rena-Vite, 30-35 kcalis/kg, and 1.2-1.5g/kg protein. If a patient on HD is experiencing severe dehydration/fever temporarily providing increased fluids accompanied by close monitoring of the patient for edema/fluid overload may aid efforts in the successful prevention of decubitus ulcers.

Nutritional treatment of decubitus ulcers needs to be focused on providing enough vitamins/mineral/fluid/protein to heal 4, 1, 7. As decubitus ulcers are a catabolic wound a patient with these ulcers will be experiencing energy expenditure losses related to the healing of the wound. Efforts by professional caregivers at SNFs/LTCs should be focused on decreasing how much the wound weeps/drains; severe weeping of a decubitus ulcer causes increased fluid/protein losses 7. If a patient with multiple ulcers is not given adequate fluids/protein they are at risk of developing PEM/dehydration. If the patient can physiologically tolerate the increase of fluid/protein then the NPIAP/ASPEN (American Society for Parenteral and Enteral Nutrition) recommends that patients with stage III/IV decubitus ulcers should receive 30-40mL/kg of fluid and 1.25- 1.5g/kg protein; for patients with stage III/IV pressure ulcers it is recommended that a patient receive 30-40mL/kg of fluid and 1.5-2.0g/kg of protein 1, 4. If a patient with a pressure ulcer is not already on fortified foods, Med Pass, Rena-Vite, and/or an MVM then a dietitian should consider which protein/vitamin/mineral supplementation method would physiologically work best to promote the healing of patients experiencing decubitus ulcer/ulcers.

References:

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