National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)/National Institutes of Health (NIH): Reducing the Morbidity and Mortality from Pressure Ulcers among Elderly Patients

Pressure ulcers, particularly in hospitalized elderly patients, are one of the major contributors to the morbidity, mortality, and economic burden of skin diseases. Because these ulcers begin developing early in an elderly patient's hospitalization, NIH-supported researchers conducted a small study to identify patient risk factors for pressure ulcer development that could be addressed in wound prevention. This project revealed risk factors that included age, male gender, dry skin, urinary and fecal incontinence, difficulty turning in bed, nursing home residence prior to admission, recent hospitalizations, and poor nutritional status.

Lead Agency:

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institutes of Health (NIH)

Agency Mission:

The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases, the training of basic and clinical scientists to carry out this research, and the dissemination of information on research progress in these diseases.

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Partner Agency:

National Institute on Aging (NIA)

General Description:

A group of patients 65 years or older, admitted through the emergency department to the inpatient medical service of four collaborating hospitals, were examined during the initial days of their admission for evidence of the development of pressure ulcers and studied for predisposing factors. The patients were examined by specially trained research nurses under the standard methodology used by most hospitals for determining the severity of pressure ulcers. Of the 201 patients studied, 6.2 percent developed a pressure ulcer within the first three days of hospitalization. The majority were on the sacral area (lower back) or on the heel. The primary predictive factors were age, male gender, dry skin, urinary and fecal incontinence, difficulty turning in bed, nursing home residence prior to admission, recent hospitalizations, and poor nutritional status. These findings will help hospitalists focus on those individuals at greatest risk for developing pressure ulcers soon

after hospitalization, and should allow for the design of nursing care practices to reduce wound incidence.

The ability to expand this to a much larger study would be limited by the training of additional personnel, unless some method of using less highly-trained individuals could be developed. The same research group analyzed photographs to determine whether they could be viewed remotely at a later time by a smaller number of research nurses, and provide dermatology information electronically (teledermatology), similar to that obtained by live-patient examination by the same nurses. The methodology allowed determination of the reliability of evaluations, comparing interrater (one research nurse to another) and intrarater (a particular nurse on several occasions). Overall, the sensitivity and specificity were quite high (97 and .81, respectively), and the inter- and intrarater reliability was also good (69 and .84, respectively). These data indicate that it would be possible to use photographs and teledermatology techniques to allow for the collection of a much larger number of participants, without requiring specially trained research nurses at each site. These methods would also allow multiple readings of the same patient materials by different research nurses, which should improve the reliability of data interpretation.

Excellence: What makes this project exceptional?

Pressure ulcers, particularly in hospitalized elderly patients, are one of the most significant contributors to morbidity, mortality, and economic burden of skin diseases. The development of these ulcers begins early in the hospitalization of an elderly patient, but this aspect had not been investigated until recently.

Significance: How is this research relevant to older persons, populations and/or an aging society?

Identification of patients at risk for developing such pressure ulcers will focus preventive measures on patients who might obtain the most benefit. Continuation of these studies and application of their results to nursing care have the potential for greatly reducing the morbidity, mortality, and burden of such wounds.

Effectiveness: What is the impact and/or application of this research to older persons?

Data collection on large numbers of patients is important in determining the appropriate criteria for pressure ulcer risk. This research also provided a methodology for extending these studies to a larger number of patients.

Innovativeness: Why is this exciting or newsworthy?

A limited number of specially trained research nurses can evaluate patients using photographs and teledermatology. This approach would minimize training of additional research nurses, and reduce staff time and other study costs, relative to the initial pilot study.