

Prevention of Heel Ulcers

Among Hip Fracture Patients

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PURPOSE

This study was conducted to determine if the introduction of the Foot WAFFLE® Air Cushion (EHOB, Inc., Indianapolis, IN) would reduce the incidence of heel ulcers in the fractured hip patients admitted to Greater Niagara General Hospital (GNGH).

CLINICAL PROBLEM

It is well known that patients with restricted mobility are at significant risk for pressure ulcer development.¹ Patients with hip fractures or hip replacements are subjected to prolonged mobility restrictions during their hospital stay, making them highly susceptible to skin breakdown. A retrospective chart review of hip fracture patients at Greater Niagara General Hospital revealed a 53% incidence of heel ulcer development. The 30 charts reviewed included those patients between 71 and 96 years of age whose length of stay was 5 days or greater during the months of September through December 1996. Sixteen of the 30 developed heel ulcers. It was noted that there was no written preventive program in place at that time, however the data indicated that various heel protective devices were used on some of these patients. The products used were *Heel-Free™* (AliMed Inc., Dedham, MA), *SPENCO® Foot Pillow* (Spenco Medical Corp., Waco, TX), *Rolyan Elbow/Heel Protector with Akton Padding* (Smith & Nephew, Germantown, WI), *Sheepskin Heel Pad* (generic version made by GNGH), pillows, and IV bags.

CURRENT CLINICAL APPROACH

In an attempt to reduce the incidence of heel ulcer development and to standardize products for cost reduction as well, a prevention program was developed to include the implementation of the Foot WAFFLE® Air Cushion for each hip fracture patient. During the months of November 1997 through June 1998, 60 hip fracture patients were admitted. Each utilized the Foot WAFFLE® Air Cushion as per the new prevention program. The patients were between 61 and 92 years of age.

PATIENT OUTCOMES

Among the 60 patients utilizing the Foot WAFFLE® Air Cushion, 0 heel ulcers developed, reducing the incidence to 0%.

RELATED OUTCOMES

In addition to patients with hip fractures, the Foot WAFFLE® Air Cushion was also used during the study for 20 patients with other diagnoses. The Foot WAFFLE® Air Cushion was successful in preventing heel ulcers among various patients who were at high risk with diagnoses including bowel resection, sepsis, skin flap, total knee replacement, below the knee amputation and frail elderly. For those patients who had heel ulcers, (i.e. community acquired, hospital acquired, 2nd degree burns), the Foot WAFFLE® Air Cushion resulted in healed or improved heel pressure ulcers.

CONCLUSIONS

The Foot WAFFLE® Air Cushion was effective in preventing heel ulcers in 100% of hip fracture patients known to be at high risk in this study. A prevention program may eliminate the use of numerous products and increase consistency in usage among staff members, thus promoting better outcomes for the patient and decrease overall costs to the facility. Since the introduction of the Foot WAFFLE® Air Cushion within Greater Niagara General Hospital, it has been included as part of the Critical Path in the Fractured Hip population.

PATIENT AND STAFF COMMENTS

POSITIVE

- Comfortable
- Easy to put on (family member)
- Better than the heel posey's (staff)
- Hardly know they are on

NEGATIVE

- Too hot
- Heel twists while in boot
- Patients cannot turn onto side with boots on

1. Bryant RA. Acute and Chronic Wounds: Nursing Management. St. Louis: Mosby; 1992. p. 106.



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FRACTURED HIP CRITICAL PATH*

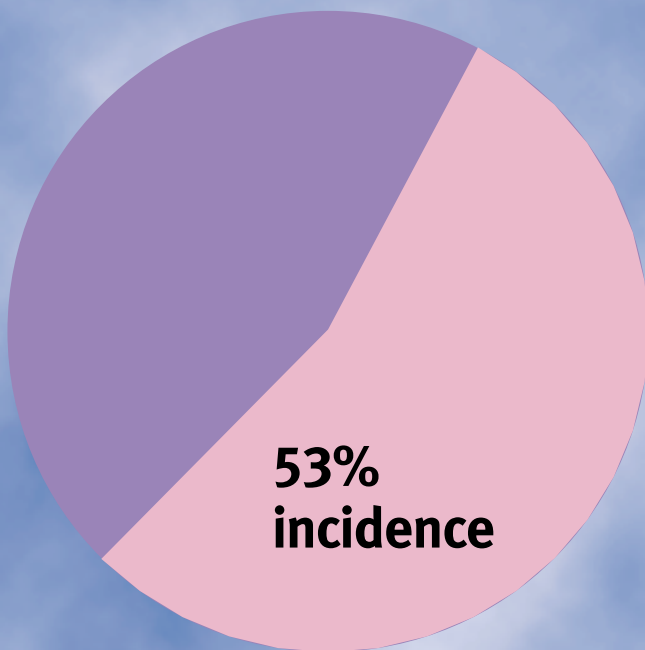
DATE	PRE-OP	DAY OF SURGERY	POST OP - DAY 1	POST OP - DAY 2
Consult	<ul style="list-style-type: none"> Internist Anesthetist Page QRT / Discharge Planner 	<ul style="list-style-type: none"> PT, OT, Discharge Planner, Dietician, Home Care Referral 		
Test	<ul style="list-style-type: none"> Hip X-Ray ?CXR ?ECG CBC electrolytes blood sugar 		<ul style="list-style-type: none"> Hip x-ray today or tomorrow CBC 	<ul style="list-style-type: none"> Hip x-ray today or tomorrow CBC
Treatment Interventions	<ul style="list-style-type: none"> Bedrest IV as ordered Foot WAFFLE® Air Cushion (to be worn at all times while in bed throughout hospital stay) ROHO® Mattress Remove from stretcher board following x-ray 	<ul style="list-style-type: none"> Pillow between legs for turning Encourage deep breathing and coughing Intake & Output IV as ordered Vital signs as per protocol Hemovac - assess q8h TED's as ordered Remove q12h x 20 min. at ____ hr. Check circulation q12h Check dressing site 	<ul style="list-style-type: none"> Pillow between legs for turning Encourage deep breathing and coughing Intake & Output IV as ordered Vital signs as per protocol Remove hemovac at ____ hr. TED's as ordered Remove q12h x 20 min. at ____ hr. Check circulation q12h Dressing change at ____ hr. as ordered 	<ul style="list-style-type: none"> Pillow between legs for turning Encourage deep breathing and coughing Intake & Output Heplock IV for therapy Vital signs BID Remove hemovac at ____ hr. TED's as ordered Remove q12h x 20 min. at ____ hr. Check circulation q12h Check suture site Dressing change at ____ hr. as ordered
Medication	<ul style="list-style-type: none"> Analgesic as ordered Aspiration risk protocol 	<ul style="list-style-type: none"> Antibiotics as ordered Analgesic as ordered Anticoagulant as ordered Antiemetic as ordered 	<ul style="list-style-type: none"> Antibiotics as ordered Analgesic as ordered Anticoagulant as ordered Antiemetic as ordered 	<ul style="list-style-type: none"> Antibiotics as ordered PH: Review chart & meds (not on weekends). Make recommendations prn.
Nutrition	<ul style="list-style-type: none"> NPO - Adjust if OR delayed 	<ul style="list-style-type: none"> Sips; DAT 	<ul style="list-style-type: none"> DAT Assess hydration status 	<ul style="list-style-type: none"> DAT 50% taken Assess hydration status
Elimination	<ul style="list-style-type: none"> ?Foley 	<ul style="list-style-type: none"> Foley as per order 	<ul style="list-style-type: none"> Foley as per order 	<ul style="list-style-type: none"> Remove foley as per order @ ____ hr. Bladder assessment if foley removed @ ____ hr.
Activity	<ul style="list-style-type: none"> Bedrest 	<ul style="list-style-type: none"> Bedrest 	<ul style="list-style-type: none"> NSG: Up in chair in room @ ____ hr. x ____ min. PT: Reinforce deep breathing & coughing & ankle pumping OT: Provide assigned wheelchair & seating system 	<ul style="list-style-type: none"> NSG: Up in chair in room @ ____ hr. x ____ min. PT: To Dept. if able. Assess transfers. Gait aid assigned (if appropriate). Bed exercises.
Education	<ul style="list-style-type: none"> NSG: Provide booklet to patient/family ("You and your fractured hip") <input type="checkbox"/> Yes <input type="checkbox"/> No 	<ul style="list-style-type: none"> NSG: Provide booklet to patient/family ("You and your fractured hip") <input type="checkbox"/> Yes <input type="checkbox"/> No 	<ul style="list-style-type: none"> NSG: Provide booklet to patient/family ("You and your fractured hip") <input type="checkbox"/> Yes <input type="checkbox"/> No NSG: Ask family to bring in proper footwear/clothing 	<ul style="list-style-type: none"> ALL: Provide reassurance to family regarding mobility. Encourage proper footwear (preferably lace-up style shoes)
Discharge Planning			<ul style="list-style-type: none"> NSG: Monitor for post-op confusion. Review care map with patient/family DP: If patient from LTC or Retirement Home, confirm transfer of info sent 	<ul style="list-style-type: none"> DP: If patient from LTC facility & limited rehab potential, consider early discharge back to LTC.

*Note: this is an excerpt of the actual 10-day fractured hip critical path.

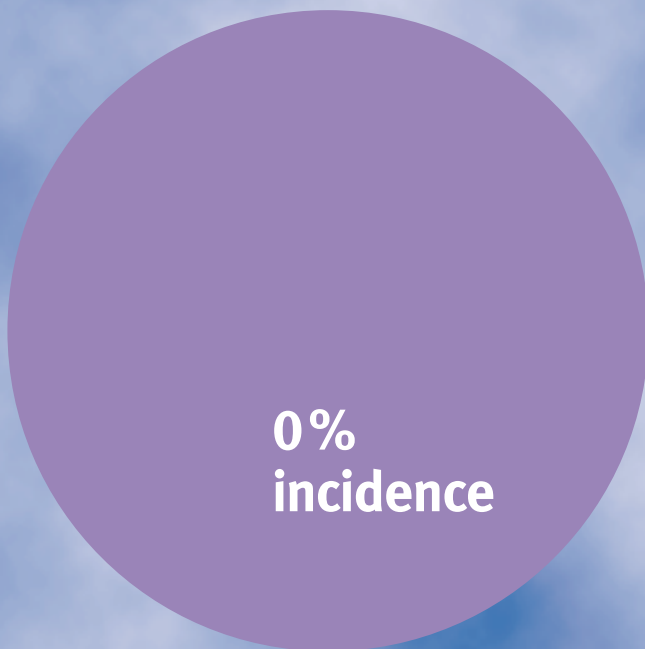
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HEEL ULCER INCIDENCE AMONG FRACTURED HIP PATIENTS



Prior to implementation of a standardized heel protection protocol, 16 out of 30 hip fracture patients developed heel ulcers.



After implementation of a standardized heel protection critical path utilizing the Foot WAFFLE® Air Cushion, 0 out of 60 hip fracture patients developed heel ulcers.



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