Is it all about pressure?

Reducing friction as part of your pressure ulcer prevention strategy
Agenda

- Understand friction and associated shear stress as a physical cause of pressure ulcers
- Consider when and where patients are at most risk of friction damage
- Discuss the options for limiting friction damage
- Demonstration of low friction fabric garments to prevent friction damage
- Results obtained using Parafricta® low friction fabric bootees routinely at St Helens and Knowsley
“Pressure” ulcers
Friction and shear are root causes and not only pressure
“Pressure” Ulcers
Grading of Pressure Ulcers

Grades 1 and 2 - Superficial

Stages:
- Stage 1
- Stage 2

Grades 3 and 4 - Deep

Stages:
- Stage 3
- Stage 4
Cost to the NHS

- Priority for reduction of patient harm
- CQUIN means reductions are incentivised by CCGs through standard NHS contract
- Measured and reported every month as part of Safety Thermometer
- In 2013 122,500 patients with pressure ulcers were recorded in England according to the Safety Thermometer
- Implied cost to NHS England estimated to be at least £750 million
- Much of the excess cost comes from extended bed stays and increased nursing time
- Commissioners must include at least 0.125% of contract value for achievement of Safety Thermometer targets (about £250,000 for an acute NHS Trust)
“Pressure Ulcers - New” – means hospital acquired more than 72 hours after admission

Setting can be filtered to benchmark other acute hospitals

Point prevalence of grade 2 ulcers is around 0.8% (means ~8000 patients recorded)
Physical forces leading to PU formation

PRESSURE
Perpendicular force relative to the skin surface
Causes tissue/blood vessel compression and internal shear stress
Is managed by pressure redistribution

FRICTION (AND SHEAR)
Tangential force relative to the skin surface
Causes tissue/blood vessel wrenching/tearing and surface shear stress
Is managed by reducing sources of friction
Friction and shear stress damage
Friction and shear stress damage

Bony prominence

Soft tissue

Blood vessels

Hypodermis

Dermis

Basement membrane

Epidermis

Resting surface e.g. mattress

Static friction “sticks” skin to surface
Friction and shear stress damage

- Pressure and shear compresses blood vessels
- Shearing forces tear apart layers of skin
- Sudden jolting as static friction overcome

"Snap back" as static friction overcome

Resting surface e.g. mattress
Grade 2 ulcers caused by friction
At risk of friction damage
Options for preventative interventions
High risk of friction damage

- Where there has been a previous history of a friction related ulcer
- Where patients are unable to reposition themselves easily and slide involuntarily down the bed or in the chair
- Where there is evidence of the early signs of skin breakdown e.g. reddened skin, abrasions or blistering
- Where there is loss of sensation in at risk areas such as the heel or buttocks e.g. due to diabetic neuropathy, stroke or nerve block
- Where patients are particularly immobile for extended periods of time e.g. in intensive care, due to spinal injury or in orthopaedics
- Where patients are difficult to reposition without some dragging on support surface
- Where patients’ conditions result in repetitive movements e.g. Huntingdon’s Disease and Alzheimer’s Disease
- Where patients tend to rub skin against the support surface because of agitation
- Where patients use one heel to push themselves up the bed e.g. following hip fracture or knee replacement
- Where there is a particular cause of extreme skin fragility is present e.g. epidermolysis bullosa, burns patients, following plastic surgery or in pre-term neonates
Options for prevention of friction damage

- Positioning
- Care when repositioning
- Care of skin condition
- Moisture management
- Prophylactic dressings
- Use of silk-like fabrics
EMERGING THERAPIES FOR PREVENTION OF PRESSURE ULCERS - “Consider using silk-like fabrics rather than cotton or cotton-blend fabrics to reduce shear and friction”

NICE Medical Technologies Evaluation Programme (2014) “The Committee recognises that Parafricta Bootees and Undergarments show potential to reduce the development and progression of skin damage caused by friction and shear in people with, or at risk of, pressure ulcers.”
Ultra-low friction garments and bedding

Parafricta® Medical Products
Parafricta® Ultra-low friction fabric

POLYCOTTON

PARAFRICTA® FABRIC
Bootees
Undergarments
Protective Bedding
Garments designed for ease of use

- Protect entire foot or trunk from friction
- Easily applied
- Easily removed to inspect ulcer or at-risk skin
- No adhesives
- Can also help to retain wound dressings
- Comfortable and breathable
- Washable at 70°C and reusable
Results obtained with bootees

Used routinely in an acute hospital setting
Implementation at the Trust

- Initial 6 months (2012) on high risk wards (orthopaedic and care of elderly) with 232 bootees
- Expanded to all 26 wards
- Total of 1024 bootees employed by 2013
- All bootees held in central equipment store
- Soiled bootees returned for external laundry (70°C 10 minutes)
- Tracked bootees used at least 10 times
Grade 2 heel pressure ulcer incidence

78% reduction in heel PU incidence

Reduction in ratio of grade 2 heel pressure ulcers to other grade 2 pressure ulcers from 0.67 to 0.24
Cost-effectiveness

- Drug tariff price is £35.14
- Laundry approx 50p per item
- Cost of treating an uncomplicated grade 2 PU is £4399 *
- If the ratio of heel to non heel pressure ulcers had not changed there would have been 26 more grade 2 ulcers in 2012/13
- Implied net savings to the NHS of over £75000
- Direct benefits paid to the Trust through CQUIN goal achievement

Questions and Discussion

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