Turning for Ulcer ReductioN: A Multisite Randomized Clinical Trial in Nursing Homes

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OBJECTIVES: To determine optimal repositioning frequency of nursing home (NH) residents at risk for pressure ulcers (PrUs) when cared for on high-density foam mattresses.

DESIGN: Multisite, randomized, clinical trial, known as Turning for Ulcer ReductioN (TURN Study).

SETTINGS: NHs in the United States (n = 20) and Canada (n = 7) using high-density foam mattresses.

PARTICIPANTS: Consenting residents (N = 942) aged 65 and older without PrUs at moderate (scores 13–14) or high (scores 10–12) risk of PrUs according to the Braden Scale.

INTERVENTION: Participants were randomly allocated using risk stratification (moderate vs high) to a repositioning schedule (2, 3, or 4 hour) for 3 weeks. Blinded assessors assessed skin weekly.

MEASUREMENTS: PrU incidence (coccyx or sacrum, trochanter, heels).

RESULTS: Participants were mostly female (77.6%) and Caucasian (80.5%) and had a mean age of 85.1 ± 7.7. The most common diagnoses were cardiovascular (76.9%) and dementia (72.5%). Nineteen (2.0%) participants developed superficial PrUs. There was no significant difference (Wilcoxon test for ordered categories) in PrU incidence ($P = .68$) according to repositioning group (2 hour, 8/321, 2.5%; 3 hour, 2/326, 0.6%; 4 hour, 9/295, 3.1%), nor was there a statistically significant difference in the incidence of PrU between the high and moderate-risk groups ($P = .79$). Also, PrU incidence was not statistically significantly different between high-risk participants based on repositioning schedule (6/325, 1.8%, $P = .90$) or between moderate-risk participants based on repositioning schedule (13/617, 2.1%, $P = .68$).

CONCLUSION: There was no difference in PrU incidence over 3 weeks of observation between those turned at 2-, 3-, or 4-hour intervals in this population of residents using high-density foam mattresses at moderate and high risk of developing PrUs when they were repositioned consistently and skin was monitored. This finding has major implications for use of nursing staff and cost of NH care. J Am Geriatr Soc 61:1705–1713, 2013.

Key words: pressure ulcer prevention; nursing home; repositioning; Turning for Ulcer ReductioN Study

Pressure ulcers (PrUs) are a common problem in nursing home (NH) residents; the prevalence of PrUs in residents at high risk of developing PrUs at the outset of the study was 11.6% according to Nursing Home Compare;[1] other studies have reported a 14% to 24% PrU incidence on standard mattresses or foam overlays.[2,3] Economic evaluation of the cost of prevention is emerging and variable, with support surfaces and repositioning identified as more costly elements of prevention.[4–6] Pressure at the interface between bony prominences and support surfaces sufficient to occlude or reduce blood flow to tissues is thought to cause PrUs.[7,8] Redistributing (through properties of support surfaces) and relieving (through repositioning) pressure to reduce length of exposure to pressure prevents PrUs. High-density foam mattresses distribute pressure more evenly and are replacing spring form mattresses.[9,10] In practice, repositioning is done less frequently than the recommended every 2 hours,[11,12] and questions remain about appropriate repositioning intervals.[13,14]

Three previous studies of support surfaces and repositioning schedules have been reported.[2,3,15] Methodological challenges of these studies include that participants at all risk levels were studied despite the likelihood that low-risk subjects do not require repositioning and may have skewed the results; properties of support surfaces differ, with powered overlays and mattresses being more advanced in

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