THE USE OF LOW FRICTION FABRIC BOOTEES ON AT RISK PATIENTS REDUCES INCIDENCE OF GRADE 2 HEEL PRESSURE ULCERS OVER 2 YEAR PERIOD

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Introduction

At St Helens and Knowsley Teaching Hospitals NHS Trust, the incidence of newly acquired (meaning 72+ hours after admission) pressure ulcers has been reduced to well below the national average (0.21% versus 1.16% according to the NHS Safety Thermometer). This has been achieved by vigilant implementation of measures such as care pathways incorporating the use of 4-sectional electric profiling beds, pressure reducing foam and alternating air mattresses for patients at risk, coupled with education and training. This has increased attention on those pressure ulcers that are occurring despite these measures. We have noted that grade 2 pressure ulcers of the heel are a persistent problem and that many of these show the signs of being caused by friction and associated shear stresses. Since 2012, we have been employing low friction fabric bootees (Parafricta®) on at risk patients (where possible) to address this issue, and can now report the results achieved over a two year period.

Method

Parafricta® slip-on bootees (figure 1) were first introduced in 2012 onto a selection of 6 wards at Whiston Hospital (3 care of the elderly and 3 orthopaedic) with a high proportion of patients at risk of getting a pressure ulcer (Maelor score >19). The hospital initially acquired 232 bootees for this purpose (from distributor H&R Healthcare Ltd). The results were sufficiently encouraging that, after 6 months, their use was extended to all 27 wards and a further 600 bootees were purchased accordingly. A further 192 bootees were purchased in 2013, meaning that up to 1024 bootees were in circulation at the hospital. This does not mean that all the bootees were on patients at any given time, as some will either be stored ready for use or out for laundry (and some will have been lost or discarded). It has been our experience that it is not possible to provide bootees for every patient that is at risk of a heel pressure ulcer and therefore some patients are provided with a firm dressing to protect the heel. The majority of the bootees were issued, as per request, by the equipment pool in the Trust and a number were issued and allocated to six individual high risk wards. This makes it difficult to establish precisely how many patients were given the bootees during the first twelve month period, it was recorded that a minimum of 600 allocations of the bootees were made during the year 2012 from the equipment pool. Soiled bootees were returned from the wards to the equipment pool for separate laundry (70°C for 10 minutes) and eventual returned to the wards. The use of the bootees has also been incorporated into a risk protocol which assists in prioritising those patients at risk of pressure ulcers who are at particular risk of getting a heel pressure ulcer.

Results

See figure 2 below. In 2011, 50 grade 2 heel pressure ulcers out of a total of 125 grade 2 pressure ulcers were recorded. In 2012, when Parafricta bootees were first employed, there were 34 grade heel 2 pressure ulcers out of a total of 117 (a reduction in the incidence of heel ulcers of 32% across all wards in the hospital - not just the six wards where the bootees were first employed). In 2013, there were only 11 grade 2 heel pressure ulcers out of a total of 56 (an overall 78% reduction since 2011). The total number of grade 2 ulcers fell each year, partly due to the falling incidence of grade 2 heel ulcer. The ratio of grade 2 heel pressure ulcers to grade 2 pressure ulcers on other sites changed substantially from 0.67 in 2011 to 0.24 in 2013.

Figure 2

The root cause analyses undertaken in 2012 revealed that only 1 of the 34 patients with grade 2 pressure ulcers on the heel had been allocated the low friction fabric bootees, and this patient had often removed the bootees. In 2013, none of the 11 patients with heel ulcers had been allocated bootees.

Discussion

There are clear indications that the bootees when used in routine practice have played a significant role in the reduction in incidence, and in particular the decline in the ratio, of heel pressure ulcers to ulcers on other sites. Whilst it is possible that general improvements in practice and awareness could have contributed to the overall incidence of grade 2 pressure ulcers, it is less feasible that the decline in the proportion of heel pressure ulcers can be explained by anything other than the increasing use of the bootees.

It also seems highly improbable that the bootees are not behind the trend when, with so many bootees in use, only 1 patient out of the 45 reported with a grade 2 heel pressure ulcer in 2012 and 2013 had been allocated a bootee. This also suggests that the incidence of grade 2 heel pressure ulcers could have been reduced further if the bootees were employed even more routinely on all at risk patients (or that some at risk patients are not being identified). The financial implications of reducing the incidence of even grade 2 pressure ulcers are considerable. The acquisition of 1024 bootees to the end of 2013 cost the Trust (at drug tariff price £35.14) approximately £38,000. The cost of laundering the bootees (£0.66 per item) would have added £3075 assuming each bootee is washed six times. On the basis that if the ratio of grade 2 heel pressure ulcers to grade 2 ulcers on other sites would not have changed without using the bootees, there would have been 13 more grade heel pressure ulcers in 2012 and 13 in 2013 it is possible to estimate the savings to the NHS that will have been made. According to the widely quoted benchmark provided by Dealey et al the cost of treating an uncomplicated grade 2 pressure ulcer is £4399. The cost, therefore, of treating the 26 heel pressure ulcers that would likely have occurred without the use of the Parafricta bootees is at least £114,374 or an implied net saving to the NHS of almost £75,000 in two years from just one site. The true savings to the NHS would likely have been significantly more because (a) some of grade 2 ulcers avoided would have progressed to more severe pressure ulcers (b) we know that most of the bootees were still available for re-use at the end of the two year period and (c) other costly preventative measures are no longer required (e.g. use of thin film dressings or heel supports).

Conclusion

The routine use of low friction fabric bootees has made a significant further contribution towards achieving zero harm targets at St Helens and Knowsley Teaching Hospitals NHS Trust and has done so whilst providing substantial cost-benefits to the Trust and NHS.

References


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