Improving pressure area risk assessment and management for people living with dementia

Alison McGrath, Zena Aldridge

It is estimated that there are currently 944,000 older people living with dementia in the UK, and that 593,200 of those people are living with advanced symptoms. People living with advanced dementia have a significantly higher prevalence of pressure ulcers (PUs), compared to those living without dementia with similar comorbidities. The care and support required to prevent pressure ulcers in people living with dementia needs to be individualised, following a holistic and person-centred assessment of the person and their unique circumstances. An improved understanding of the increased risk and causal factors of developing pressure ulcers in high risk groups, such as people living with advanced dementia, can support practitioners to conduct a more through and person-centred risk assessment and management plan, including choosing the most appropriate products to meet a person's needs.

KEYWORDS:
Pressure ulcer prevention ■ Advanced dementia ■ Risk reduction ■ Risk assessment ■ Product selection

It is estimated that there are currently 944,000 older people living with dementia in the UK, and that 593,200 of those people are living with advanced symptoms, the total number of people living with dementia is set to rise exponentially to 1.6 million by 2040 (Wittenberg et al, 2019). While dementia is largely associated with old age, it is important to acknowledge that dementia is not a normal or inevitable part of ageing (Qui and Fratiglioni, 2018). Furthermore, it should be acknowledged that dementia is not only a condition of older age and that there are approximately 42,330 people below the age of 65 years who are living with the condition in the UK (Prince et al, 2014).

'The most common clinical complications which lead to death in advanced dementia are an inability to take on adequate nutrition and hydration and infections.'

Dementia is an umbrella term used to describe a group of symptoms that are characterised by memory impairment, behavioural changes, and loss of cognitive and social functioning caused by neurodegenerative disorders (Qui and Fratiglioni, 2018). There are over 200 subtypes of dementia, with the most common being Alzheimer's disease, vascular dementia, Lewy Body disease, mixed dementia (usually a combination of Alzheimer's disease and vascular dementia) and frontotemporal dementia (Sandilyan and Dening, 2019).

ADVANCED DEMENTIA

Dementia is a life-limiting, progressive condition for which there is no known cure (Sampson and Harrison Dening, 2020). The progression of dementia is dependent on the type of dementia and any intercurrent comorbid conditions that a person living with dementia might have, with a suggested period from diagnosis to death varying from 3–10 years (Wattmo et al, 2014).

As dementia progresses to the advanced or severe stages, those affected experience significant cognitive and physical impairment (Moyle and O'Dwyer, 2012), and are likely to:

- Be urinary and faecally incontinent
- Unable to verbally communicate
- Experience reduced mobility
- Require support with all of their activities of daily living (ADLs) (Kupeli et al, 2018).

The most common clinical complications which lead to death in advanced dementia are an inability to take on adequate nutrition and hydration and infections (Mitchell, 2015).

FRAILTY AND COMORBID CONDITIONS

People aged over 76 years who have a diagnosis of dementia or cognitive impairment are often frail (Kulmala et al, 2014). The presence of frailty is associated with poor health outcomes, yet there is often a lack of

Alison McGrath, clinical nurse specialist, Direct Healthcare Group; Zena Aldridge, independent dementia nurse consultant

understanding that adverse events such as falls or an infection can trigger disproportionately negative changes and decline in the health status of frail residents due to their lack of homeostatic resilience (Barclay et al, 2014; Clegg et al, 2013; Clegg et al, 2015). There is a clinical link between frailty, weight loss, sarcopenia (the term for the loss of muscle with ageing) (Martin and Ranhoff, 2021), and skin fragility (Ferris and Harding, 2020). Consequently, with increased frailty there is a higher risk of developing pressure ulcers (PUs). Indeed, if an older patient with advanced disease and increasing frailty develops a deep full-thickness pressure ulcer, even with good care and adequate nutrition, it is unlikely to heal and can trigger terminal decline (Bowman, 2011).

COMORBID CONDITIONS

A study by Public Health England (PHE, 2019) identified that 77% of people living with dementia had at least one comorbid condition, with 44% of those people having a diagnosis of hypertension, 17–20% a diagnosis of diabetes, stroke, transient ischaemic attack (TIA), coronary heart disease (CHD), or depression, while 9–11% had a diagnosis of Parkinsonism, chronic obstructive pulmonary disease (COPD), or asthma. Moreover, it was identified that people living with dementia often have multiple health conditions, with 22% living with three or more comorbid conditions, and 8% with four or more comorbidities (PHE, 2019). A background of multiple chronic diseases and complicating factors associated with immobility, tissue ischaemia, and undernutrition contribute to the risks associated with a person with dementia developing pressure ulcers (PUs) (Jaul et al, 2018).

PRESSURE ULCERS

Pressure ulcers are defined as 'localised damage to the skin and/or underlying tissue, usually over a bony prominence (or related to a medical or other device), resulting from sustained pressure (including pressure associated with shear). The damage can be present as intact skin or an open ulcer and may be painful' (NHS Improvement, 2018a). National Institute for Health and Care Excellence guidelines (NICE, 2014) state that, 'pressure ulcers are caused when an area of skin and the tissues below are damaged as a result of being placed under pressure sufficient to impair its blood supply', and go on to suggest that 'typically they occur in a person confined to bed or a chair by an illness'. The aetiological mechanisms by which stress and internal strain interact with damaged skin and subcutaneous tissue resulting in pressure ulcer development include:

- Localised ischaemia reperfusion injury
- Impaired lymphatic drainage
- Sustained cell deformation (Coleman et al, 2014).

Coleman et al (2014) suggest that the most prevalent direct causal factor increasing the risk of developing PUs in people living with neurodegenerative disorders is immobility. Indirect factors include poor nutrition, increased age, use of sedating medication causing decreased activity and oral intake, infection, falls with injuries and chronic wounds. A study by Mitchell et al (2009) identified that almost 40% of people living with advanced dementia developed PUs before their death. While another study by Jaul et al (2016) identified that people living with advanced dementia had a significantly higher prevalence of PUs, compared to people who had similar comorbid conditions but did not have dementia.

PRESSURE ULCER PREVENTION AND MANAGEMENT FOR PEOPLE LIVING WITH DEMENTIA

The care and support required to prevent PUs in people living with dementia needs to be individualised, following a holistic and person-centred assessment of the person and their unique circumstances. In the authors' clinical experience, using a systematic approach such as the ASSKING model (assess risk; skin assessment and skin care; surface; keep moving; incontinence and moisture; nutrition and hydration; giving information or getting help) (NHS Improvement, 2018b) and applying it to people living with advanced dementia enables preventive measures to be implemented where possible, and management strategies which can be evaluated and adjusted as required. This paper will now explore how the symptoms of advanced dementia, with or without the presence of intercurrent conditions, might impact a person living with the condition in the context of the ASSKING model (NHS Improvement, 2018b).

Practice point

Improved understanding of the increased risk and causal factors of developing PUs in high risk groups, such as people living with advanced dementia, can support practitioners to conduct a more through and person-centred risk assessment and develop a more robust management plan.

A — assess risk

Thorough risk assessment is fundamental in the prevention and management of PUs in any patient cohort (Balzer et al, 2014). Early identification of those at higher risk of developing a PU, such as those living with advanced dementia, can improve opportunities to ensure that a person is prescribed the most appropriate preventative care and equipment. NHS Improvement (2018b) recommends using the PURPOSE-T (pressure ulcer risk primary or secondary evaluation tool), (Coleman et al, 2018).

PURPOSE-T is a three-step assessment process which uses colour coding rather than a score to describe risk and help plan interventions:

- Step 1 considers mobility status, condition of the skin and clinical judgement. The outcome of this will then ascertain if step 2 is required
- Step 2 is the full assessment which considers independent movement, detailed skin assessment, any history of PU, medical devices, perfusion, sensory perception, moisture and diabetes

- Step 3 is a colour coding of risk based on assessment as either:
  - Green — no current risk
  - Amber — no PU but at risk
  - Red — PU or scarring from previous PU requiring secondary prevention/ treatment

(Coleman et al, 2018).

It is important to recognise that a person's risk factors can change as their condition deteriorates or improves. Therefore, risk assessment must be an ongoing, not singular activity. Those at higher risk require a more detailed assessment as described in step 2 of PURPOSE-T (Coleman et al, 2018), where an assessment of mobility should include all aspects of independent movement, including walking, ability to reposition or transfer. It is necessary when assessing a person with dementia to consider the impact of cognitive changes on their ability to mobilise, as well as any physical challenges or mobility issues they may have.

S — skin assessment and skin care

Advancing dementia can affect a person's ability to verbally communicate their needs effectively, including whether they are experiencing discomfort, wish to reposition themselves, or if they are in pain as a result of compromised skin integrity (Achterberg et al, 2019). Although common, pain is often left undetected and untreated in people living with dementia (Achterberg et al, 2019), with studies suggesting that around 60–80% of people with dementia living in care homes, and more than half of people living with dementia in the community experience pain (van Kooten et al, 2017; Achterberg et al, 2019).

People living with dementia who are experiencing pain may demonstrate behaviours such as apathy, pacing, agitation, aggression and verbal abuse, which can be misinterpreted as behavioural and psychological symptoms of dementia, as a result of being unable to communicate their needs verbally (van Dalen-Kok et al, 2015; Malara et al, 2016; Achterberg et al, 2019). This is not only distressing for the person, but can also increase their risk of shearing or injuring the skin if they becomes agitated (Le Blanc and Baronski, 2014). Therefore, in conjunction with risk assessment, ongoing skin assessment, skin care and frequent skin inspections are key both for PU prevention, and in establishing a person's current skin condition and identifying early signs of pressure or shear affecting their skin (Fletcher, 2019).

'Advancing dementia can affect a person's ability to verbally communicate their needs effectively, including whether they are experiencing discomfort, wish to reposition themselves, or if they are in pain as a result of compromised skin integrity.'

S — surface selection

Given some of the risk factors, such as reduced movement and communication, frailty and comorbid conditions, people with dementia may have difficulty changing position without help, e.g. when they are transferring between bed to chair, or repositioning themselves while sitting or lying down. Since PUs occur when tissue is compressed between the bony prominence and an external surface, there is a need to pay particular attention to the surface a person is lying or sitting on, as well as other surfaces that are in contact with the skin, such as medical devices or equipment.

A support surface is defined as:

A specialised device for pressure redistribution designed for management of tissue loads, micro-climate, and/ or other therapeutic functions (e.g., any mattresses, integrated bed system, mattress replacement, overlay, or seat cushion, or seat cushion overlay).

(National Pressure Ulcer Advisory Panel [NPUAP], 2018).

When choosing an appropriate pressure-relieving surface for a person with dementia, it is important not only to consider the level of risk and current skin status, but also other features that may be appropriate to meet their wider needs. For example, a support surface with its immersion and envelopment properties will minimise any movement in comparison to alternating cell therapy, yet still be appropriate for use in high/very high risk patients, or perhaps a surface that is quiet/ can be silenced to avoid disruption or reduce distress as a result of heightened sensitivity.

The Carital® Optima is the first mattress to receive dementia design accreditation from the Dementia Services Development Centre (DSDC) at Stirling University, an internationally recognised centre for knowledge exchange and research impact dedicated to improving the lives of people living with dementia. The Carital Optima was assessed by the DSDC team, who were of the view that it is a much needed product that goes beyond the threshold of a 'dementia friendly' product, as it is essential in helping those who live with dementia to

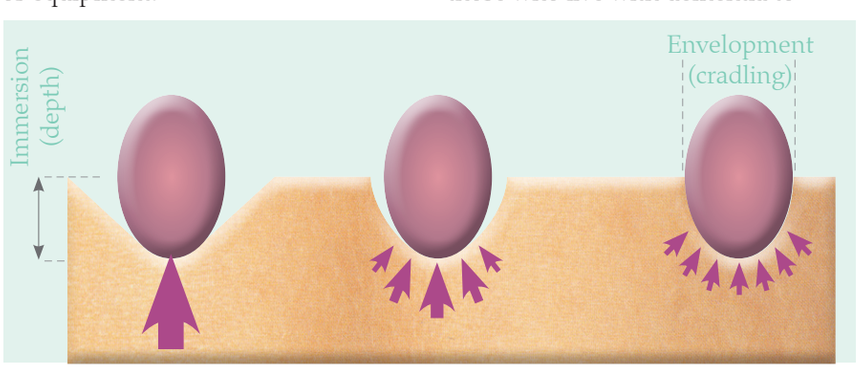

Figure 1.
Visualisation of the impacts of immersion and envelopment on pressure redistribution.

Product review

The Carital Optima support surface is designed to minimise the level of deformation to an individual's tissue while in the supine or seated position. It has little movement in the mattress, which benefits comfort and tranquillity. This is because the Carital Optima pump quietly adjusts the pressure in the open-air cell structure according to the patient's body weight, shape and position, and the formation of the tunnel formed upper cells reduce the risk of bottoming out, and the risk of tissue shear or friction. As a result, little change of position is required, which ensures less sleep disruption, and the quiet pump reduces the risk of causing disturbance to a person living with dementia. Furthermore, the minimum dynamic stimuli during rest and sleep contributes to a better day and night rhythm, which is often disturbed in people living with dementia (University of Stirling, 2022).

avoid the development of a PU (University of Stirling, 2022; www.directhealthcaregroup.com/carital-optima-given-dementia-design-accredited-product-status-by-dsdc/). It is appropriate for people who are at very high risk of developing PUs as it provides high levels of immersion and envelopment to reduce deformation of tissue.

The oval to the left of *Figure 1* demonstrates how the body can be immersed into a surface. Immersion is defined as the depth of penetration into a surface. The oval to the right on *Figure 1* demonstrates how a surface can envelop the patient and how this distributes the pressure and reduces deformation. Envelopment is defined as the ability of a support surface to conform around a person's body (NPUAP, 2018). It is noted that good envelopment is associated with low interface pressures and shear, as more of the body surface area is in contact with the support surface and the body weight loads are transferred more uniformly (Call et al, 2020; Call and Cheney, 2020). The larger the contact area for the load transfer, the smaller the localised cell and tissue deformations and tissue stress concentrations. A support surface that continuously provides good envelopment, regardless of a person's body characteristics and position, fulfils the primary requirement for being effective in PU prevention (Gefen and Soppi, 2020).

'People living with dementia experience many of the causative factors of functional incontinence and as a consequence are disproportionately affected compared to people without dementia.'

K — keep patients moving

Regardless of what support surface a person living with advanced dementia is lying or sitting on, they will remain at risk of developing PUs if they do not change position or are not regularly assisted to move. Conversely, if people are moved excessively when they are distressed or restless, they are at increased risk of shear and friction injury (Young, 2021).

People living with dementia who remain mobile, but who may require some assistance, may benefit from a sit-to-stand aid, such as the ReTurn7500i (*Figure 2*) and ReTurnBelt to aid mobilisation. The use of a contrasting colour (red) for the frame in the former was a deliberate addition, as this can help a person with dementia and those with sight loss to be able to define objects more clearly (Bowes et al, 2016). Encouraging a person to complete a sit-to-stand will enable a short transfer, for example, from a chair to a commode, and can also promote tissue reperfusion, minimising the risk of PU development (Wywialowski, 1999).

People living with dementia with limited mobility who are utilising a hybrid or dynamic support surface system are likely to require repositioning and may, in the authors' clinical experience, benefit from a powered turning aid and/or positioning cushion. These systems gently support the person and those who care for them to facilitate repositioning and offloading to promote effective PU prevention.

When the person has successfully been repositioned, their body can be supported using positioning cushions, which can be adapted to various situations and conditions.

I — incontinence assessment and care

There is an increased prevalence of incontinence as dementia progresses to the advanced stages (Harwood and Cowan, 2021). Functional incontinence is associated with impaired cognition and is caused by immobility, disorientation, communication difficulties, or inability to find the toilet, rather than abnormalities of the brain (Aldridge and Harrison Dening, 2021; Harwood and Cowan, 2021).

People living with dementia experience many of the causative factors of functional incontinence and as a consequence are disproportionately affected compared to people without dementia (Byles et al, 2009; Gove et al, 2016; Aldridge and Harrison Dening, 2021). However, it should not be assumed that they are experiencing functional incontinence and incontinence should be appropriately assessed (Harwood and Cowan, 2021;

Figure 2.
Return 7500i patient transfer system.

Aldridge and Harrison Dening, 2021). Whatever the cause of any urinary or faecal incontinence, effective skin hygiene and promoting continence where possible are essential for skin health generally and will reduce the risk of PUs, associated dermatitis, and urinary tract infections (UTIs) (Kottner and Beeckman, 2015).

N — nutrition and hydration assessment and support

Poor dietary intake and weight loss are common in people with dementia and can occur during any stage of the disease trajectory (Aldridge et al, 2020). In the earlier stages, it may be as a result of attention deficits or poor memory, dyspraxia or agnosia (Brooke and Ojo, 2015; Aldridge et al, 2020). However, in the more advanced stages, problems relating to dysphagia may cause difficulties with coordinating chewing and swallowing, issues with transferring food bolus, or aspirating when swallowing (Candy et al, 2009; Brooke and Ojo, 2015). Furthermore, people with dementia may lose the normal physiological drivers of appetite due to changes in the hypothalamic function (Sampson et al, 2009; Minaglia et al, 2019; Aldridge et al, 2020). In end stage dementia, significant weight loss can occur, as a result of malnutrition, sarcopenia, anorexia, lethargy, altered immune function and cachexia (Minaglia et al, 2019; Aldridge et al, 2020) — factors leading to an increased risk of PU development. Thus, in the authors' clinical experience, support surfaces with immersion and envelopment properties are beneficial for people living with advanced dementia, who may be sensitive to alternating support surfaces following significant weight loss.

G — giving information

It is important to recognise that as dementia progresses to the more advanced stages, those affected are increasingly likely to have reduced mental capacity and verbal communication. As a result, where appropriate, family and carers should be involved and information should be provided in a number of ways, i.e. verbal and written and regularly reinforced (Bird et al, 2021).

CONCLUSION

People living with dementia, especially in the more advanced stages, are extremely vulnerable to pressure damage. Understanding the aetiology and risk factors associated with the development of PUs in people living with dementia and applying them to risk assessments can enable health and social care staff to prioritise risk reduction strategies and specific treatments, which can delay or even prevent the onset of PUs in this vulnerable patient cohort. This can have a direct impact on improving quality of life and promoting better outcomes for those living with the condition and those who care for them.

Health and social care professionals need to be aware of the often complex needs of people living with dementia and act as advocates to ensure that they have equitable access to appropriate equipment (e.g. pressure ulcer prevention mattresses and cushions, specialist seating and moving and handling aids) for long-term use across health and social care settings. This, in turn, will help to reduce the risk and improve management of pressures areas in people living with dementia. JCN

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Revalidation Alert

Having read this article, reflect on:

- Why people living with dementia have a higher risk of developing pressure ulcers
- How you undertake holistic and person-centred assessment of an individual and their unique circumstances
- Your access to appropriate pressure-relieving equipment.

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