**Bursar Report: Wheelchair Tilt In Space And Recline Function: Influence On Seat Interface Pressure And Ischial Blood Flow In An Aged Population.**

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Rhona Moot’s Free Paper Presentation reported a study carried out to look at the effect of tilt in space and recline on sitting interface pressure, and on ischial blood flow, and examining the relationship between them.

This was of particular interest to me, as I have been aware of the importance of using change in position to manage pressure risk for many years whilst working in a Community Rehabilitation Setting. It highlighted to me how vague my knowledge had been about what precisely what would actually effectively change pressure distribution. Within my new role in the Wheelchair Service, over the last year I have been prescribing wheelchairs with tilt in space functionality and I regularly encourage the use of tilt in space as a way of changing the patient’s position and gravitational forces to reduce interface pressure. However, having been to this presentation I realise that it is not just about relieving the pressure, but also about returning blood flow to the areas that have been under pressure, and how long this can take.

Another common problem that Rhona mentioned was the difficulty in ensuring that those adjusting the position of the wheelchair know the difference between recline and tilt in space and the effect that both have on the individual sitting in the wheelchair. I have come up against this difficulty frequently within daily practice. As many of the clients I have been seeing are fully dependent on others for change of position, I have had discussions with many carers/family members about pressure management within the wheelchair seating and it had become increasingly apparent that most people have difficulty in understanding the difference between recline and tilt in space.

Due to the problem of people not understanding the difference between the effects of the two levers (green and yellow on the Rea Azalea) on the handles, what tends to happen is that they use a ‘bit of both’, and the patient’s posture is affected as a result, usually by them sliding forward in the wheelchair due to excess recline being set. Therefore I will often ‘lock off’ the recline at a point that is effective for my patient, and leave the carers to adjust tilt in space only, as and when necessary.

What was clear from Rhona’s report is that both tilt in space and recline have a reducing effect on interface pressure. Which led me to wonder whether I am doing a disservice to my patient’s by locking off recline. However, it is common knowledge that by adjusting recline alone, the risk of shear is higher (Hobson, 1992). This coupled with the often adverse effect on posture (Tierney, 2019) leads me to believe that unless a patient has one person adjusting the chair at all time, who is aware of how to use the two functions effectively, then locking off the recline has to be a compromise that is made to reduce postural and pressure risk to the patient.

Another interesting point Rhona made was that an increase in blood flow to the tissues is only seen at larger angles of tilt and recline. Therefore to assist with cell healing, large angles of tilt and recline are required. This is often difficult to achieve a) because recline is locked off for the majority of patients, and b) because most patients want to remain upright for activities and resist using larger angles of tilt. Rhona compared the impact of using small and large angles: small angles of tilt and recline would reduce mean pressures, there would be no increase in blood flow but the person would find it easier to be involved in daily activities, whereas larger angles reduce mean pressures, increase blood flow but it is much harder for the patient to be functional in this position.

The paper presentation has led us as a therapy team to review our practice when we are issuing chairs with tilt and recline functions. We are now much more aware of how we are educating carers, and how we are prescribing the use of tilt and recline. We are issuing tilt gauges as standard to help carers to set appropriate positions. We are providing verbal and written information on why we have set recline to a particular level, why certain levels of tilt are required, what activities need to have a different angle and when to adjust back to the prescribed tilt angle. We have designed small posters to show the difference between recline and tilt, and have small laminated signs to be issued with relevant wheelchairs showing the effects of both recline and tilt at a quick glance.

Our aim from these changes in our practice is to help carers/family members to understand why recline and tilt are used, the difference between the two, and to reduce the risk of postural and pressure risks to our patients.

**References**

Hobson, 1992. Comparative effects of posture on pressure and shear at the body-seat interface. *Journal of Rehabilitation Research and Development,* 29(4), pp. 21-31.

Tierney, M., 2019. *WHAT IS THE DIFFERENCE IN BACK ANGLE RECLINE AND TILT IN SPACE?.* [Online]
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