Hard Tech, Soft Touch – An Exchange

Technology to aid indoor mobility and transfer of immobilised older persons

I agree with the assessment by Mauro Columbo et al that considerable scope exists for technical improvements in transfer mobility systems[1]. I also concur with their opinion that the dismally low user take-up in this product segment could be enhanced significantly if user-based considerations figure more prominently in product planning and design.

Colombo and colleagues discuss primarily the scarcity and limitations of technical aids in respect of usability for the manoeuvre and transfer of fully immobilized elderly persons. Nevertheless, it should be remembered also that a sizeable number of frail elderly people retain at least residual lower limb function, in which case I think the key challenge is that of creating the maximum possible ambulatory independence in a practical and safe manner. Although the authors and most readers of this journal probably would agree that prospective 'zero gravity' solutions remain somewhat beyond the horizon, a variety of user-oriented assistive devices for institutional and home-based transfer mobility applications for people with residual self ambulatory capability are becoming commercially available.

As a case in point, our centre is participating in the development of several mobility transfer devices whose concept and design address specifically the issues of usability and efficacy raised by Colombo and colleagues. The following pair of examples illustrates this:

(i) A new transfer belt designed to reduce significantly the risk of back or leg injury to the caregiver, as well as conferring increased sense of security to the patient during the lifting manoeuvre. Industrial prototypes of this product, which has received FDA certification, currently are being market tested in Israel, Great Britain, and the USA (Figure 1).

(ii) A lightweight and compact partial weight-bearing ambulatory system that permits persons with nominal lower-limb function to 'walk' unassisted. The product, whose footprint is comparable to a conventional wheeled walking frame, is intended as an alternative to the much larger and heftier electrically powered suspension systems criticised by the authors. The institutional version of the product already is in use at several Israeli rehabilitation centres and has undergone extensive user tests in the USA. A project is currently in progress to create a version adapted for use at home.

(iii) In each of the above examples, the development process was underpinned throughout by the comprehensive capture of user requirements, including a detailed task analysis of both the patient and the caregiver. User focus groups were conducted before and following each design iteration. In this manner, only features actually endorsed by the potential users were incorporated in the final product.

It is a reasonable assumption that the gerontechnology take-up problem is due in a large part to the depersonalisation created by the technology (whereby often the only interaction between the patient and caregiver is via a button or switch). This perhaps is borne out by the authors' anecdotal observation that a "warm touch and cheerful hug" is so important during the transfer manoeuvres; and I suggest not just in the case of dementia patients. However, this requirement necessarily predicates the

design of systems that synthesise (in the holistic sense) the respective roles of the patient, assistive device, and caregiver. This, I propose, then is the key challenge. Quite likely, gerontechnological progress shall result eventually in effective solutions to most functional problems in aging and disability; transfer mobility included. The question is, however, will these future solutions sideline or promote the connection between caregiver and patient?

Figure 1: Patient transfer belt

References

1. Colombo M. Hard Tech, Soft Touch. Technology to aid indoor mobility and transfer of immobilised older persons. Gerontechnology 2002; 2(2):215-218

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