future. Until then, the diagnosis of SVD should be made with the exclusion criteria.

We also agree that a small infarct can be caused by ICAD or CE, and appropriate therapy for the underlying problem should be initiated in these cases. However, previous studies using diffusion-weighted imaging (DWI) showed that patients with clinical lacunar syndrome frequently had concomitant cortical infarction [1, 2]. Our group also demonstrated that ICAD or CE most often produced concomitant cortical infarction [3], which may not be detected by CT or conventional MRI. Therefore, SVD cannot be reliably diagnosed on clinical grounds or conventional CT/MRI.

The strength of our study was that we used DWI in selecting patients with a strictly deep subcortical infarction without concomitant cortical lesions. In this setting, the incidence of ICAD or CE was very low. Our result showed that the confidence interval for the lesion size was greater in patients with MCAD than in those with SVD (see fig. 2 in our paper [3]). Also, the lesion size was larger in patients with ICAD or CE, although the number of those patients was small. Thus, we may have to search for embolic sources or large vessel atherosclerotic diseases more carefully in patients with large subcortical lesions than in those with small lesions. However, our main finding was that the average lesion size was not different between the patients with MCAD and those with SVD. Therefore, 1.5 cm criteria for SVD do not seem to be of value in differentiating stroke subtypes even in the setting of DWI. Although a recent paper used 2.0 cm criteria for lacunar infarction [4], our result did not change when we used 2.0 cm criteria.

Thus, we suggest that strictly subcortical MCA territory infarction defined by DWI may be categorized as SVD rather than cryptogenic infarction when MCAD, ICAD and CE are reliably excluded, even if the lesion size is greater than 1.5 cm in diameter.

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Jong S. Kim, MD
Department of Neurology, University of Ulsan College of Medicine
Asan Medical Center
388-1 Pungnap-dong, Songpa-gu
Seoul 138-736 (Korea)
Tel. +82 2 3010 3442, Fax +82 2 474 4691
E-Mail jongskim@amc.seoul.kr

Cerebrovasc Dis 2007;24:157–158
DOI: 10.1159/000103626

Mobilisation 'in Bed' Is Not Mobilisation

Julie Bernhardt [a, b], *Bent Indredavik* [e], *Helen Dewey* [a], *Peter Langhorne* [f], *Richard Lindley* [d], *Geoff Donnan* [a], *Amanda Thrift* [a, c], *Janice Collier* [a]

[a]National Stroke Research Institute and [b]School of Physiotherapy, La Trobe University, [c]Baker Heart Research Institute, Melbourne, and [d]Department of Geriatric Medicine, Western Clinical School, University of Sydney, Sydney, Australia; [e]Department of Medicine and Department of Neuroscience, St. Olav's Hospital, Trondheim, Norway; [f]Department of Geriatric Medicine, Glasgow Royal Infirmary, Glasgow, UK

We read with interest the recent article by Diserens et al. [1], in which the authors review literature related to early mobilisation after stroke and then present the Lausanne early in bed and out of bed mobilisation protocol. Whilst we fully agree with their conclusion that the protocol requires testing in a prospective randomised controlled trial, we think it is important to re-emphasise that their protocol is largely based on low levels of evidence, mainly expert opinion, rather than reliable randomised controlled trials.

At the present time, there is indeed limited evidence on which to make decisions about the optimal timing and amount of mobilisation early after stroke. Although the review performed by the authors found a small case-control study conducted by Paolucci et al. [2], two other randomised controlled trials of early stroke rehabilitation interventions that included a mobility component have been performed [3, 4]. These authors found small [4] or no benefit [3] for early intervention. However, the studies were small and the patient population as well as the timing and content of rehabilitation varied widely. In addition, the potential harms of the interventions were not addressed. Moreover, at a physiological level, there is some evidence that sitting positions are associated with improved oxygenation [5], particularly in stroke patients with respiratory co-morbidities. These have not been reviewed in the article.

Any discussion of early mobilisation requires explicit definition of what constitutes 'early', as well as what constitutes 'mobilisation' to ensure clinicians and researchers speak the same language. Diserens et al. [1] suggest that lying flat for the first 24 h, then sitting up to 45° at day 2 constitutes 'in-bed mobilisation'. We argue that this should be called resting in bed, as there is little or no opportunity for any form of movement beyond rolling side to side. Medicine has a long history of advocating bed rest for acute conditions or procedures. In a systematic review of trials of bed rest, Allen et al. [6] found no benefit, and significant harms, associated with the practice, and in most instances bed rest has been abandoned. Early activity out of bed (our definition of *mobilisation*) has therefore been introduced as an important part of acute treatment after many procedures and diseases. The most pronounced of these changes probably occurred for uncomplicated acute myocardial infarction, with bed rest now recommended for 12 h instead of 6–8 weeks [7]. The Lausanne protocol

seems 'to turn the clock back' by recommending getting out of bed only after 2–3 days of bed rest.

We know from several well-designed stroke unit trials that mobilisation out of bed has been routinely performed from 12 to 24 h after stroke onset [8, 9] and that this has been associated with excellent outcome [10]. In practice, with adequate hydration and careful observation, patients have rarely exhibited significant blood pressure drops or signs of worsening of the clinical condition and no permanent worsening has been observed. Diserens et al. [1, p. 185] argue that the Scandinavian practice of very early mobilisation is considered 'too abrupt by most specialists fearing diminished cerebral blood flow by mobilisation out of bed'. This opinion is not currently supported by evidence.

In most cases the penumbra is probably present only during the first 3–16 h after the stroke event and at most 48 h [11–13]. Although we might hypothesise harm to a possible long-lasting penumbral zone, there is currently no evidence that mobilisation affects its level of perfusion or, more importantly, alters clinical outcome. Until such information is available, there is no compelling reason for the many clinicians who practice early mobilisation (out of bed within 24 h) in their stroke units to abandon the practice.

Clearly, getting out of bed is likely to affect more than just blood flow to the brain. Examples of possible benefits may include fewer complications of immobility, maintenance of lean body mass (and therefore improved general health), and attenuation of secondary muscle weakness and loss of cardiovascular fitness. Many of these benefits are likely to help recovery, limit fatigue and improve mood. Functional activity is also necessary to aid reorganisation of the brain [14] and, as Diserens et al. [1, p. 185] point out, 'exercise therapy primarily induces treatment effects on the abilities at which training is specifically aimed'. This is indeed a well-established fact. If we are to help patients regain the ability to move, then they must move. The best way of promoting recovery is yet to be determined. At present, we can only hypothesise on the potential benefits (or harms) of mobilisation and the mechanisms by which mobilisation may influence patients with acute stroke.

Evidence from well-designed clinical trials is needed before we can advance the debate about when and how we should mobilise early after stroke. And, given our knowledge of the duration of the ischaemic penumbra, any randomised trials of early mobilisation should include a group who commence mobilisation at least within 24 h of onset. In 2004, we commenced the phase II safety and feasibility randomised controlled trial of early rehabilitation (with a focus on mobilisation) versus standard stroke care (AVERT). In AVERT, patients randomised to the very early mobilisation group commenced within 24 h of stroke onset. In recognition of the limitations of previous trials of early mobilisation, we have included examination of safety outcomes such as death, early deterioration, serious adverse events as well as the assessment of perceived exertion following interventions. Although we are unable to discuss the specific outcomes of the trial at this time, a summary of the phase III protocol is now available [15]. In phase III we will test the efficacy *and* cost effectiveness of the intervention with a planned sample size of more than 2,000 patients. Through the conduct of a large, high-quality, multi-centre randomised controlled trial, we hope to contribute to the body of evidence around very early mobilisation after stroke.

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Julie Bernhardt, PhD
Clinical Trials Division, AVERT Program
National Stroke Research Institute
300 Waterdale Road, Heidelberg Heights, Vic. 3081 (Australia)
Tel. +61 39 496 2783, Fax +61 39 496 2650
E-Mail j.bernhardt@unimelb.edu.au