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Preface

The application of telemedicine in stroke care is known as telestroke. Stroke may be an 'ideal' disease for telemedical applications as its symptoms can be reliably assessed via videoconferencing, and the electronic transmission of brain images has already become part of clinical routine. At the same time, the availability of stroke specialists is limited, particularly in neurologically underserved (rural) areas, and telemedicine promises to make expertise available in remote places without time delays. Within 10 years after the first description of this concept [1], telestroke has been implemented in many areas of different countries. With the demonstrated reliability of teleneurological assessment, telemedicine has been used in many networks to increase the safe application of intravenous thrombolysis. Telemedicine has also been found to be suitable for identifying patients with stroke mimics and to select patients who may benefit from interventional stroke treatments.

Recently, the European Stroke Organisation (ESO) guidelines have promoted the development of telemedicine as a feasible, valid and reliable means of facilitating thrombolysis and the delivery of acute treatments to patients in distant hospitals, and as a useful tool in hospital pathways and systems for acute stroke patients. It is recommended that telemedicine should be considered in remote or rural areas in order to improve access to treatments. In addition, the ESO emphasizes that the development of clinical networks, including telemedicine, is recommended to expand access to high-technology specialist stroke care (class II, level B) [2]. However, despite a clear need for more specialized stroke care in Europe, telestroke has not yet been rolled out in many countries and the existing applications are often fragmented and not so frequently used [3].

Using these different potentials of telestroke, specialized stroke services could be established within a broader Stroke Unit concept, which could include 'stroke unit facilities' in both hospitals without an on-site Neurology Department and in support of neurologists on-site. New telemedicine approaches are also currently being investigated in stroke prevention (tele-home monitoring), prehospital stroke management and postdischarge care.

At the 2008 European Stroke Conference in Nice, the state of the art in 'telemedicine in stroke' was discussed in a mini-symposium proposed by the French local committee (Jean-Louis Mas, Chairman) and supported by the Société Française NeuroVasculaire (Jean-Philippe Neau, President). This symposium was entirely devoted to the analysis of developments and advances in telestroke with a large overview of the different experiences, and with a broad panel of experts. Following this successful meeting, the editor-in-chief of *Cerebrovascular Diseases* agreed to give us, as Guest Editors, the opportunity to assemble the different papers in a special supplement which provides a broad, roundtable summary of this topic. The present edition of *Cerebrovascular Diseases* focuses on different aspects of telestroke. Based on current stroke care in daily practice, the needs for networking and utilization of modern IT technology are analyzed, both for acute and postdischarge stroke care. A review of published telestroke research summarizes the scientific evidence. The national stroke strategy of Finland may serve as a model of area-wide coverage for state-of-the-art stroke care in Europe – implementing telestroke as part of the program.

Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

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As with every technological innovation in health care, telestroke involves certain risks relating to misuse and malpractice. The need for quality management and certification of Telestroke Units will therefore be discussed in one of the contributions. Finally, we will address the barriers, limitations and ongoing questions of telemedicine in stroke care.

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Heinrich J. Audebert, MD
Thierry Moulin, MD, PhD

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