

Digital Communication Strategies in Visceral Medicine

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Dear Editor,

Digital communication is a major challenge in visceral medicine, which therefore must undergo a fundamental change in the management of these patients. This applies to many aspects of medical expertise, endoscopic or other technical skills, but also to details of reimbursement for visceral diseases [1]. At the same time, the medical complexity of patients is steadily increasing. More than 2/3 of patients suffer from 2 or more comorbidities, and more than 14% of the publicly insured population were reported to have >6 comorbidities [2]. This increasing complexity and medical demand result in less availability of continued medical education, up-to-date medical information, and/or feedback, a problem that increasingly also affects clinical training in academic centers resulting in a poorer training of residents and students, the gastroenterologists of tomorrow [3].

On the other hand, in some areas of visceral medicine, for example, in fatty liver diseases, the number of patients is steadily increasing. The hepatological health report HEPAAHEALTH by the European Liver Society EASL assumes a prevalence of fatty liver disease in >20% of the adult population in Germany and large parts of Europe [4]. In addition, chronic viral diseases (hepatitis B or C), alcoholic liver disease, and other metabolic diseases have a high prevalence [4]. At least in Germany, this is aggravated by reimbursement modalities that favor few procedures in visceral medical care, which is why other diseases, for example, the field of hepatology, are only cared for

by a small number of health-care providers. Thus, it is foreseeable that conventional forms of care will no longer be sustainable in the future. Thus, as in many other areas of medicine as well, a profound change in medical care will be necessary. This is especially true for preventive medicine. A significant increase in participation in health screening is only possible when new digital strategies like apps are increasingly offered.

Digitalization, the development of telemedical structures and the use of artificial intelligence, may at least provide a partial way out of the dilemma [5–7]. The current technical basics and possibilities of digital medicine; their translational implementation in innovative, digital diagnosis, treatment, and treatment strategies; and also the necessity of their evaluation and legislative requirements are reviewed in this special issue of *Visceral Medicine*. The editors consider this to be of essential importance insofar as physicians will in future have to advise patients not only on medication but also on digital forms of treatment. In these new forms of health care, an increasing digital qualification of medical staff will be necessary not only for patient care but also to promote the medical-technical dialogue and innovation at the interfaces of medicine, technology, and information technology.

The implementation of a consistent system for a digital anamnesis and documentation of the medical history will undoubtedly improve the diagnosis and therapy of visceral diseases. At the same time, duplicate examinations or delays in diagnostic or therapeutic processes can be

avoided. In the future, this will enable efficient stratification, allocation of health system resources, and high-quality care for the large number of patients [7]. These aspects are extensively examined by Kernebeck and colleagues [8] in their review on electronic health records. Naumann et al. [9] further describe the integration of these technologies into everyday clinical practice in routine outpatient patient care. It becomes clear that the development, translation, and integration of technological digital medical possibilities and mobile technical systems, especially wearables, lab-on-chip, AI solutions, apps, etc. [5–7, 10], accompanied by solutions for data exchange and processing are only at the beginning of their possibilities. For a successful implementation and possibly continuous monitoring in everyday life, a clear concept for data economy and security, on the one hand, and knowledge management, on the other hand, will be necessary – a task of the legislature that is clearly described by Burg et al. [11] and repeatedly addressed in the expert discussion.

Ultrasound, endoscopy, sectional imaging, and also pathology/histology already offer considerable digitization potential, for example, AI-supported diagnostics (and therapy) of visceral diseases [6, 7, 12]. This essentially serves to standardize, improve the detection of pathological findings, and accelerate diagnostics. In their review articles on *Artificial Intelligence in Endoscopy* [13] and *Advances in Digital Pathology* [14], the authors Hann and Meining as well as Grosserüschekamp et al. [14] summarize the current status of the development and the beginning translation into clinical studies and routine.

Planning, support, and automation of surgical procedures have considerable potential to improve patient safety, outcome, and cost-efficiency. This applies not only to the areas of robotics or digital applications such as augmented reality techniques in liver surgery [15] but also to a great extent the preparation of the patient for an operation, pre-habilitation [16].

Finally, the evolution of clinical decision support systems offers a qualitative improvement in clinical care in many clinical areas, including visceral medicine. In their

review article, Teufel and Binder [17] show that clinical decision support systems, in addition to avoiding medication errors, could also make an important contribution to improving quality and reducing costs through the implementation of standardized processes and reminders of necessary examinations or appointments [18].

In summary, the developments and new technologies in digital medicine offer considerable opportunities to improve many areas of anamnesis, diagnosis, and treatment of visceral medical diseases. This digital revolution will result in profound changes in the outpatient and clinical forms of health care and require an increasing digital qualification of medical staff. Furthermore, it will also be accompanied by an increasingly process-oriented structure of health care for which the expertise of medicine, computer science, molecular biology, and medical technology must be bundled. Last but not least, the legislators are required to accompany this development with clear concepts and specifications for (data) structures, data security, and billing for digital resources. Intensive communication between all health-care and technology providers can ultimately result in a significant improvement in health care, a reduction in side effects and complications, and also significant cost savings – a goal that makes it worthwhile to bundle interdisciplinary scientific expertise as has been done in this special issue *Digital Communication Strategies in Visceral Medicine*.

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The authors have no conflict of interest to declare.

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Author Contributions

Both authors contributed equally.

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