Editorial

Tim Pohlemann and Tina Histing

Challenges in geriatric trauma care

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The rapid change of the age distribution in Western societies has generated a remarkable change in the needs of trauma care and the coordination of inhospital rehabilitation programs. Whereas in Germany the number of traffic-associated fatalities is reaching historically low numbers despite an increasing traffic density, the number of geriatric patients with osteoporosis-related fractures and injuries is rising from year to year. This requires completely novel strategies in readiness and evaluation and forces the development of novel surgical concepts, including both surgical techniques and implant design. The differences in the general status of trauma patients, ranging from competing athletes to moribund patients, the frequency of comorbidities, the individual living conditions as well as the social environment requires an individual interdisciplinary treatment. This special issue of innovative surgical science will focus on these problems. We have invited several authors with both an outstanding research reputation and an excellent clinical expertise in geriatric fracture care to contribute to this issue.

In their contribution Ulla Krause et al. focus on the distinct additional needs which are required for the organization of geriatric fracture care, including infrastructure and treatment processes. Due to major efforts the German Trauma Society has now developed and defined the standards of qualification, structures and interdisciplinary cooperations needed for high quality geriatric trauma care. The Society inaugurated a certification process for hospitals to ensure adequate treatment conditions. This is now well accepted with a rapidly increasing number of both certified hospitals and hospitals applying for certification. The novel geriatric trauma care concepts are accompanied by research in the health services, which is realized by an already established specific multicenter registry, generating data on processes, quality and outcome of treatment.

Melanie Haffner-Luntzer and her coauthors provide a state-of-the-art review on the influence of mechanical stimulation on bone healing and bone remodeling. New aspects on specific changes in bone healing in geriatric patients and osteoporotic bone are discussed. Despite changes in hormone levels as well as limited expression of growth factors and signaling molecules, mechanical stimulation is also recognized as an important enhancer of bone formation and remodeling in the elderly. In fact, the lack of mechanical stimulation might be an important cause for delayed bone healing or non-unions in this patient population.

Tim Rovien and his colleagues focus in their article on general bone biology in elderly patients and on osteoporosis as the main cause for the onset of fragility fractures. They examine the possible changes in calcium homeostasis and the complicated biochemical interplay of bone as tissue. In addition, the authors indicate the need for prophylaxis in patient care and present the recommended protocols, thus, providing and excellent overview also for clinical surgeons and geriatricians.

Carl Neuerburg et al. also focus on diagnostic and therapeutic protocols and guidelines in osteoporosis. This includes in particular the need for interprofessional, “intersectional” cooperations between family doctors, hospitals and outpatient orthopedic trauma care. Also, the authors highlight the importance and the patient benefit of the so-called “fracture liaison service” (FLS).

Matthias Knobe and his colleagues discuss the specific surgical issue of anchorage of implants in an insufficient bone stock, which is one of the main reasons for secondary displacement of stabilized geriatric fractures and revision surgery in patients with osteoporosis. They indicate that the outcome of geriatric fracture treatment depends on different factors, such as bone quality, fracture pattern, implant design and the surgeon’s ability to generate an adequate fracture reduction and fixation with limited additional trauma to the patient.

Overall, the contributions in the present issue outline the challenges in geriatric trauma care and provide possible solutions for enhancing the treatment quality. It can clearly be recognized, that geriatric trauma care cannot be solved solely by surgical strategies, but requires an interdisciplinary approach to improve the outcome. The main focus should be the rapid surgical care, which enables early mobilization and rehabilitation. With the expected increasing number of geriatric patients, prevention and personal responsibility towards individual health conditions and activity will play a crucial role in reducing the incidence of osteoporosis and fragility fractures. We thank...
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