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EDITORIAL

# Bone tumours

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Thirty to 40 years ago, the development of new imaging techniques, the introduction of highly effective chemotherapy and the progression of reconstruction surgery by using new modular design of tumour endoprostheses all resulted in the implementation of limb-saving surgery and fundamentally altered our philosophy about the treatment of highly malignant bone tumours.

Although such basic changes have not been observed since then, it is important to re-evaluate the results from time to time to obtain evidence of the results with different treatment protocols.

The first two articles in this special issue are review articles. Rozeman, Cleton-Jansen and Hogendoorn from Leiden, The Netherlands, summarise the state of art of our knowledge about the pathology of primary malignant bone-forming and cartilage tumours. Carrle and Bielack from Stuttgart, Germany, focus in their article on the current chemotherapy regimens in conventional osteosarcoma and in it's variants, like small-cell surface osteosarcomas or secondary osteosarcomas. Chemotherapy for poor responders and in older patients is also discussed here on the basis of the results of COSS, the German-Austrian-Swiss Cooperative Osteosarcoma Study Group, a multicentre study which evaluates the treatment results of osteosarcoma patients out of a 100-million population.

A couple of articles deal with the performance of endoprosthesis and allografts in reconstructive surgery. Heisel and co-workers from Heidelberg, Germany, give a comparable overview of the different modular cemented and non-cemented tumour endoprosthesis systems, such as the KMFTR, HSS modular linked, Stanmore, GUEPAR, etc., which already have long-term results. They add to the literary review their own mid-term experiences with the MUTARS system, which was used in 50 consecutive patients. Orlic and co-workers from Zagreb, Croatia, analysed 90 patients treated by resection and reconstruction with a modular endoprosthesis in the lower extremity over 17 years. Both groups conclude that despite the fact that the failure risk and complication rate are significantly higher in tumour patients than in conventional cases, the implantation of megaprostheses is a valuable choice for the long term treatment.

Reduction of the ratios of complications with tumour endoprostheses is a central question addressed by the newer designs. Bhangu and co-workers from San Francisco, USA, and Birmingham, UK, present a new tumour endoprosthesis system with special high compression fixation of the stem. The mid-term results of this cementless design are comparable to those of the well-established cemented Stanmore system.

One of the most serious complications of tumour endoprosthesis implantation is infection. Rao and co-workers from Preston, UK, report good results with a two-stage revision, inserting a spacer and using either a local pedicled flap or free flap to cover the prosthesis.

Matejovsky, Matejovsky jr. and Kofranek from Prague, Czech Republic, point out, on the basis of the long-term results of implantation of 72 allografts, that even with the improvement of the tumour endoprostheses the use of allograft—especially in young patients—remains an optional solution.

Next, Werner from Hamburg, Germany, presents the morphological, biological and histogenetical aspects of one of the most problematic tumours, the giant cell tumour. Based on the literary data, he discusses possible factors which

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could have a role in the aetiopathogenesis of this tumour and the role of different cytokines and enzymes expressed by the tumour cells which could be responsible for the biological behavior. The following two articles reflect the present controversy in the literature concerning the treatment schedules for giant cell tumours. Han and co-workers from Seoul, Korea, demonstrate significantly better results of curettage when anhydrous alcohol was used as adjuvant treatment, whereas Malek and co-workers from San Francisco, USA, report on acceptable local recurrence rate in the treatment of giant-cell bone tumour using curettage, burring and bone grafting without adjuvant therapy. Dominkus and co-workers from Vienna, Austria, and Bologna, Italy, selected 14 patients out of 649 treated for giant-cell tumours who developed lung metastases in their follow-up courses. They found that metastatic benign giant-cell tumours have a good prognosis (all of their patients are alive after 70 months' follow-up) provided they have adequate treatment.

Apart from the local recurrence rate, the quality of life also plays important role in the clinical outcome of giant-cell tumour patients. Szalay and co-workers from Budapest, Hungary, compared the frequency of degenerative changes in the weight-bearing joints following curettage and bone grafting versus cementing techniques. At first, the cementation had a better performance, at 2 years or longer follow-up, however, the results became worse, when the tumour reached the subchondral area. Tricalcium phosphate could have optimal biomechanical properties, as reported by Masazumi and co-workers from Kyoto, Japan.

A special challenge for the surgeon is the chordoma in the sacrococcygeal region. Atalar and co-workers from Ankara, Turkey, present the problems following resection at different levels. Urinary incontinence (72%), rectal incontinence (36%), and wound infection (36%) were the leading complications.

An increasing problem is the treatment of bony metastases, which occur much more often in the musculoskeletal system than primary bone tumours. Sarahrudi and co-workers from Vienna, Austria, present their philosophy concerning the surgical treatment, patient selection, outcome and complications in 88 patients treated for bony metastases.