



## ■ EDITORIAL

# The role of multidisciplinary teams in musculoskeletal infection

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Bone and joint infection (BJI) represents a major complication in orthopaedic and trauma surgery, with incidence rates of 24/100,000 inhabitants for periprosthetic joint infection (PJI),<sup>1</sup> 17/100,000 inhabitants for osteomyelitis,<sup>2</sup> and 11/100,000 inhabitants for fracture-related infection (FRI) in Germany.<sup>3</sup> Steadily increasing primary arthroplasty procedures and numbers of fractures will further boost implant-associated infections.<sup>4</sup> The choice of treatment is usually complex, depending on multiple factors such as soft-tissue and implant condition, duration of infection, the underlying pathogen, and the patient's morbidity.<sup>5–7</sup> Surgical strategies range from debridement of necrotic bone and implant retention in the case of stable implants and acute infection, to implant exchange in a one-stage, two-stage, or even multi-stage surgical treatment when infection is chronic or implants are loosened. Patients are faced with immobility up to amputation of the affected limb, pain, prolonged stay in hospital, the administration of local and systemic antibiotics with common side effects, and, consequently, reduced quality of life.<sup>8,9</sup> Although classification systems and treatment algorithms have been developed,<sup>5,10</sup> the uncertainty of surgeons regarding BJI treatment decision-making has been highlighted in a recent qualitative analysis.<sup>11</sup> As the adequate treatment of BJI requires the consideration of multiple factors, case discussions between experts of different disciplines could enhance BJI management and research. Therefore, in order to achieve the best outcome for the patient, interdisciplinary approaches and early involvement of multidisciplinary teams are deemed important.<sup>12,13</sup> Analogous to oncology, where interdisciplinary tumour boards have become an evidence-based gold standard in cancer therapy,<sup>14,15</sup> collaborative approaches for the management of BJI should be supported.<sup>10</sup> In addition,

such interdisciplinary management complements the efforts of antibiotic stewardship programmes, and will play a key role in reducing the development of antimicrobial resistance.<sup>16</sup> Going further, the establishment of a nationwide system with improved communication between centres specialized in treating BJI can also be beneficial as shown, for instance, in France.<sup>17</sup>

Ferguson et al<sup>18</sup> recently investigated the impact of a multidisciplinary bone infection unit undertaking osteomyelitis surgery with a single-stage protocol on clinical outcomes and healthcare use. In comparison to national outcomes in England, the authors reported reduced hospital stays, lower reoperation rates for infection recurrence, improved survival, lower amputation rates, and lower overall healthcare use, advocating the establishment of centrally funded multidisciplinary bone infection units. A similar approach with valuable clinical experiences is reported by Carlson et al,<sup>19</sup> with a collaboration between infectious disease clinicians and orthopaedic arthroplasty surgeons to optimize PJI treatment, which they termed “arthroplasty infection service”. Finally, Ntalos et al<sup>20</sup> compared treatment outcomes of spondylodiscitis patients, whose treatment strategy was either established by a single discipline approach or by a weekly multidisciplinary infection conference consisting of orthopaedic surgeons, medical microbiologists, infectious disease specialists, and pathologists. The latter cohort showed reduced days of total antibiotic treatment, and the treatment plan differed between the groups. The same working group further demonstrated that patients treated for PJI of the hip had shorter in-hospital stay, reduced numbers of surgeries, and fewer antibiotics when discussed in a multidisciplinary setting.<sup>21</sup> In addition, Bauer et al<sup>22</sup> analyzed files of patients treated for bone and joint infection before and after the implementation

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of a multidisciplinary staff meeting, reporting optimized adaptation of antibiotic therapy. Furthermore, Kotsougiani-Fischer et al<sup>23</sup> reported their experiences of multidisciplinary team meetings for patients with severe limb defects, concluding that such meetings represent a valid tool to tailor individualized treatment plans avoiding limb amputation.

In conclusion, based on findings in the literature, interdisciplinary approaches should be implemented as a standard of patient care in trauma surgery to further improve clinical outcomes in the treatment of BJI, as is already common practice in oncology.

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