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Multidisciplinary concertation in decision making for complex bone and joint infections

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Background: Bone and joint infections (BJI) are a significant cause of morbidity, especially with the increasing ageing population. The most severe BJI cases represent a key issue for orthopaedists and physicians specialized in infectious diseases due to complex management and outcome. These complex BJI (CBI) have reference centres (RC) in France to enhance management, guidelines and knowledge. Thus, each potential CBI must be assessed in a multidisciplinary concertation in one RC. However, CBI definition has been designed by Health Ministry without concordance validation. The objective of this study was to assess the inter- and intra-rater agreement in CBI diagnosis in a RC and between different RC.

Material/methods: First, five raters (3 orthopaedists – 2 infectiologists / 2 professors – 2 seniors – 1 fellow) of the same RC performed an explanatory validation of 20 BJI cases in simple or "complex",

using the complete medical record. Inter- and intra-rater agreement was estimated blindly using Fleiss and Cohen kappa (κ) coefficients. Secondly, six RC have performed with strong study design (standardized information and reporting form) the same 20 BJI validation in a multidisciplinary concertation to assess the inter-RC agreement. Data about RC concertation members have been collected and described: number, age, status, medical specialty, time per case.

Results: The overall agreement of the first step validation was: inter-rater $\kappa=0.23$, intra-rater $\kappa=0.48$ (range 0.27-0.90). The inter-rater agreement range was: 0.00-0.50 within and 0.13-0.50 between specialties, 0.21 within and 0.00-0.50 between statuses. The second step is still in progress.

Conclusions: The first step of our study confirmed the current heterogeneity of CBJI, with moderate intra- and inter-rater agreements, implying disparate hospital care management for BJI cases. In the second step, a good inter-RC agreement is expected due to their skill of expertise, which could enhance the place of the RC for CBJI.