



CORR Insights

CORR Insights®: What Factors are Associated With Quality Of Life, Pain Interference, Anxiety, and Depression in Patients With Metastatic Bone Disease?

Andrea Piccioli MD

Where Are We Now?

For patients with metastatic bone disease, intramedullary nailing and endoprosthetic reconstruction are two surgical approaches that can treat the fractured segment, prevent neurovascular injuries, and ensure

This CORR Insights® is a commentary on the article “What Factors are Associated With Quality Of Life, Pain Interference, Anxiety, and Depression in Patients With Metastatic Bone Disease?” by van der Vliet and colleagues available at: DOI: [10.1007/s11999-016-5118-3](https://doi.org/10.1007/s11999-016-5118-3).

The author certifies that he, or a member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research®* editors and board members are on file with the publication and can be viewed on request.

The opinions expressed are those of the writers, and do not reflect the opinion or policy of *CORR®* or The Association of Bone and Joint Surgeons®.

that the patient remains highly functional [6]. Beyond surgical approaches, managing quality of life (QOL)-related concerns such as pain, anxiety, and depression also play a role in the treatment of patients with metastatic bone disease. Our speciality, however, currently lacks robust data that can identify patients with bone metastases who are more susceptible to pain, anxiety, depression, and ultimately, a worse QOL.

Van der Vliet and colleagues are the first authors to determine an association between a pathologic fracture and deteriorating QOL, increased anxiety, and depression. They also found that younger age, current smoking status, and

This *CORR Insights®* comment refers to the article available at DOI: [10.1007/s11999-016-5118-3](https://doi.org/10.1007/s11999-016-5118-3).

A. Piccioli MD (✉)
Centro Oncologico di Palazzo Baleani,
Azienda Policlinico Umberto I, 00100
Rome, Italy
e-mail:
a.piccioli@policlinicoumberto1.it

unemployment were independently associated with a worse QOL in this patient population. Most importantly, they demonstrated that patients with impending and actual pathologic fractures show lower QOL scores compared with patients who underwent surgery for impending fractures. This finding, if confirmed by larger prospective studies, could lower the threshold for surgery in patients affected by impending fractures from bone metastases.

Where Do We Need To Go?

Regarding the role of surgery for patients affected by impending fractures, it remains unclear which criteria should be used to assess the risk of fracture for a patient. In most centers, the Mirels score [5] and the judgments or experiences of the surgeon are the main parameters to assess the risk of impending fracture. Prospective studies with standardized parameters may address this issue. Indeed, CT-based imaging for assessing the risk of

fracture in the patient with bone metastases has been shown to be reliable for clinicians [1, 2].

Physician-patient communication can also influence a patient's QOL. Future prospective studies should also set out to determine what medical information is appropriate for physicians to disclose to their patients with bone metastases. An informed patient is an empowered patient who may take an active role in their own care [3], which can potentially have a positive effect on their QOL.

The ways in which physicians communicate with their patients and patients' families have dramatically changed our specialty in the last few years and may eventually influence the surgery-related QOL parameters in patients with bone metastases [4]. Patients are more technically savvy and are more inclined to research their treatment options online. It has been suggested that patients with rare tumors expect a clinician to suggest an appropriate clinical trial as part of their treatment plan, as well as to explain the benefits of a potential clinical trial [3, 4]. In fact, this expectation plays a role in how a patient chooses a physician. This is common in medical oncology, but less so in orthopaedic surgery. Orthopaedic surgeons should keep this in mind when treating a patient with bone metastases.

How Do We Get There?

Long-term prospective studies may allow for an accurate estimation of the survival of patients with metastatic bone disease who undergo surgery. Even though some statistical methods have shown promising results, more studies are required to confirm these findings in a larger population [7].

One way to achieve this target is to develop a large international database that prospectively collects data from patients with bone metastases and actual or impending fractures who are candidates for surgery. The collection of patient data may help assess the risk factors that could potentially lead to a pathological fracture. This cohort of patients may also be studied in terms of QOL-related factors and their relation to clinical and functional results. These studies are financially feasible, and need to be performed in qualified oncology centers.

References

- Alexander GE 3rd, Gutierrez S, Nayak A, Palumbo BT, Cheong D, Letson GD, Santoni BG. Biomechanical model of a high risk impending pathologic fracture of the femur: lesion creation based on clinically implemented scoring systems. *Clin Biomech (Bristol, Avon)*. 2013;28:408–414.
- Derikx LC, van Aken JB, Janssen D, Snyers A, van der Linden YM, Verdonschot N, Tanck E. The assessment of the risk of fracture in femora with metastatic lesions: Comparing case-specific finite element analyses with predictions by clinical experts. *J Bone Joint Surg Br*. 2012;94:1135–1142.
- Gonzato O. Could information improve patient access to new emerging drugs in rare cancer trials? *J Cancer Policy*. 2016;8:38–41.
- Kager L, Whelan J, Dirksen U, Hassan B, Anninga J, Bennister L, Bovée JV, Brennan B, Broto JM, Brugières L, Cleton-Jansen AM, Copland C, Dutour A, Fagioli F, Ferrari S, Fiocco M, Fleuren E, Gaspar N, Gelderblom H, Gerrand C, Gerß J, Gonzato O, van der Graaf W, Hecker-Nolting S, Herrero-Martín D, Klco-Brosius S, Kovar H, Ladenstein R, Lancia C, LeDeley MC, McCabe MG, Metzler M, Myklebost O, Nathrath M, Picci P, Potratz J, Redini F, Richter GH, Reinke D, Rutkowski P, Scotlandi K, Strauss S, Thomas D, Tirado OM, Tirode F, Vassal G, Bielack SS. The ENCCA-WP7/EuroSarc/EEC/PROVABES/EUR AMOS 3rd European bone sarcoma networking meeting/joint workshop of EU bone sarcoma translational research networks; Vienna, Austria, September 24–25, 2015. Workshop report. *Clin Sarcoma Res*. 2016;6:3.
- Mirels H. Metastatic disease in long bones. A proposed scoring system for diagnosing impending pathologic fractures. *Clin Orthop Relat Res*. 1989;49:256–264.
- Perisano C, Scaramuzza L, De Santis V, Piccioli A, Ziranu A, Barone C, Maccauro G. Quality of life following

CORR Insights

- surgical treatment of lower limb metastases in long bone. *J Biol Regul Homeost Agents*. 2015;29:501–507.
7. Piccioli A, Spinelli MS, Forsberg JA, Wedin R, Healey JH, Ippolito V, Daolio PA, Ruggieri P, Maccauro G, Gasbarrini A, Biagini R, Piana R, Fazioli F, Luzzati A, Di Martino A, Nicolosi F, Cannasio F, Rosa MA, Campanacci DA, Denaro V, Capanna R. How do we estimate survival? External validation of a tool for survival estimation in patients with metastatic bone disease—decision analysis and comparison of three international patient populations. *BMC Cancer*. 2015;15:424.