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Editorial

Local approaches to sacro-iliac joint pathologies: several unanswered questions

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Pathologies involving sacroiliac joint (SIJ) such as inflammatory joint diseases, post-traumatic or post-surgical alterations, as those observed after lumbar stabilization or fusion, or degenerative pathologies, may give birth to dysfunction and pain that may result in severe impairment¹. The role of SIJ in the genesis of clinically-relevant alterations is often under-estimated and the methodologically correct approach for diagnosis of SIJ involvement is still uncertain and the object of debate for several reasons; recent studies suggest that anesthetic injections for pain blocking may be useful for a correct diagnosis and definition of the role of SIJ in the genesis of pain, even more than common imaging, thus suggesting how local approaches to SIJ are not only necessary as therapy in certain cases, but also fundamental for diagnosis². In seronegative spondyloarthritides, where SIJ inflammatory involvement is common³, a systemic approach by the use of immunosuppressants or biologic drugs is usually sufficient to control the SIJ inflammation and its clinical manifestations, as well as the systemic involvement of other joints and eventual organs or apparatuses⁴. Similarly, systemic analgesic or anti-inflammatory treatments may exert their function in relieving pain and dysfunction when a post-traumatic, post-surgical, or degenerative involvement of SIJ is observed, but systemic approaches, even if easier to administer, do not always fit clinical manifestations of isolated SIJ involvement or represent the most correct choice when only SIJ is involved or acts as the primary actor. Local approaches for SIJ are necessary as well as other local approaches commonly used for other joints, even if physiopathology and anatomy of this peculiar joint makes local approaches more difficult than those used in other joints. There are several reports in the literature of patients affected by an isolated SIJ inflammation, mono- or bilateral, or post-traumatic/surgical or degenerative SIJ involvement not associated to other systemic manifestations, thus making local approaches more effective in the balance of costs and risks related to systemic therapies⁵. The local approach to SIJ isolated involvement has been proposed previously in literature for patients affected by monoarthritis of SIJ or for patients whose clinical condition was to ascribe only to SIJ. Similarly, in patients affected by SIJ arthritis, with or without systemic involvement, where a systemic immunosuppressant or biologic therapy is forbidden for other co-existing clinical alterations, such as cancer, intolerance, immunodeficiency and others, a local approach is necessary in order to achieve partial or complete remission. Intra-articular administration of different compounds is actually commonly performed in other joints such as knee, hip, ankle, shoulder, and other districts, but SIJ still represents a difficult localization for its anatomical features and for the substantial lack of data in scientific literature⁶.

Data reported in the literature demonstrate that cooled or conventional radiofrequency neurotomy, intra-articular injections of steroids or other compounds such as anti-TNF monoclonal antibodies, and also periarticular

injections of steroids or anesthetics or botulinum toxin may play a role in the treatment of SIJ alterations^{2,7-10}, but a recent systemic evaluation of previous studies on this topic, performed by Hansen *et al.*¹¹, demonstrated the fundamental lack of consistent data on this argument. Hansen *et al.* stated that the evidence for cooled radiofrequency neurotomy is fair, the evidence for effectiveness of intra-articular steroid injections is poor, the evidence for periarticular injections of local anesthetic and steroid or botulinum toxin is poor, the evidence for effectiveness of conventional radiofrequency neurotomy is poor, and the evidence for pulsed radiofrequency is poor in managing sacroiliac joint pain. The authors reported clearly how paucity of literature on therapeutic interventions, differences in various techniques, and different diagnostic standards for sacroiliac joint pain represent a major limitation of their systemic evaluation and of actual knowledge on this topic. However, the therapeutic approach does not rely only on the injected compound or on the physical treatment administered, as also technical approaches may make a difference in results. Regarding intra-articular injections, different contributions for the standardization of a correct technique have been reported in scientific literature, but still a consensus on this topic is largely missing. Intra-articular SIJ injections have been performed by Fluoroscopy, Computerized Tomography, Magnetic Resonance, and Ultrasound guidance¹²⁻¹⁵. In our opinion, as for other joints and especially when repetition of intra-articular injection is needed, sparing of radiations is highly relevant, as also suggested by EURATOM¹⁶, thus limiting the use of Computerized Tomography and Fluoroscopy. Magnetic Resonance and Ultrasonography¹³⁻¹⁵, on the contrary, grant radiation sparing, but excessive costs related to the use of Magnetic Resonance as well as the not easy availability of Magnetic Resonance machines with respect to the costs of ultrasound guidance and its relative easiness of retrieval even in smaller health centers make ultrasound the best choice for image guidance in approaching a difficult joint such as SIJ. A study performed by Klauser *et al.*¹⁴ also reported data on the efficacy of ultrasound in guiding injections using Computerized Tomography for controlling needle insertion and compound injection in cadavers, adding evidence also on different ultrasound approaches for different clinical conditions. Another study from Klauser *et al.*¹⁷ reported data on the relevance of ultrasonography in the diagnosis of sacroiliac inflammatory involvement, adding evidence to the relevance of ultrasound also in diagnostic processes. A study from our group¹⁵ reported another technical contribution for intra-articular ultrasound-guided injection of SIJ, proposing an alternative technical approach for inflammatory SIJ intra-articular therapy. Different approaches have been reported, there have been reports on the use of different compounds as well as different

radiofrequency-based neurotomy techniques, but still every kind of standardization is missing. Even the use of steroids for intra-articular or periarticular injection seems unclear in its efficacy profiles, and a standardized therapeutic dose has not been evaluated. If safety profiles of different approaches to SIJ pathology may seem reassuring, even in this field further studies are needed to establish them more precisely and establish more precise results over the long-term. Regarding different pathological conditions involving SIJ, more studies are needed to establish what kind of treatment better suits every condition and what dose of radiations or drugs is necessary to attain improvement with low side-effects. In conclusion, local approaches for SIJ pathologies need, in our opinion, a large number of studies, dealing with physio-pathological aspects of SIJ inflammation or dysfunction, technical aspects for local approaches, and long-term, double-blind based efficacy/safety profiles of different approaches.

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