EFFICACY OF SHORT TERM TERIPARATIDE FOR UNTREATABLE HIP AND KNEE BONE MARROW EDEMA SYNDROMES

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The use of magnetic resonance (MRI) for the diagnosis of hip and knee pain revealed a set of conditions that occur with epiphyseal bone edema. 1. The so-called bone marrow edema syndromes (BMEs) are a challenge for clinicians because it includes a variety of diseases such as transient bone marrow edema and osteoporosis, complex regional pain syndrome I (CRPS type 1), stress fractures and bone bruise, subchondral insufficiency fracture and osteonecrosis. In most cases the medical history facilitates us the correct diagnosis but it is not always true and unfortunately is not always possible to identify a causative factor. The lack of knowledge on the pathological processes between these diseases and the demonstration that some of these can evolve into osteonecrosis, the theory that BMEs are a variable form of an early stage or self-limiting osteonecrosis, further complicates the diagnostic process and the formulation of a correct therapeutic strategy.

The goal of conservative treatment is to control symptoms, prevent or delay surgery and to protect the joint. The conservative treatments commonly used are AINS, painkillers and opioids, bisphosphonates, iloprost and prostaglandins and hyperbaric therapy all to be combined with rehabilitation, physical therapies and partial or non-weight bearing. Therapy with both sysadoas and surgery and to protect the joint. The conservative treatments commonly used are AINS, painkillers and opioids, bisphosphonates, iloprost and prostaglandins and hyperbaric therapy all to be combined with rehabilitation, physical therapies and partial or non-weight bearing. Therapy with both sysadoas and hyaluronate is useful for secondary osteoarthritis. Despite these treatments have proven to be effective in most of the cases, it is still a subset of patients who are classified as untreated and are generally intended for prosthetic surgery.

In this patients, the failure of the above mentioned therapy has led us to try a three months’ therapy with teriparatide when the maximum anabolic effect is present before promoting bone remodeling. Moreover, the up regulation of growth factors like bFGF-2 and IGF-1, RANKL, the influence on the Wnt/β-catenin signaling pathway and the transcriptional suppression of the sclerostin gene may play an important role on the regulating effect of teriparatide on bone. Teriparatide has also an adrenal effect increasing plasma and urinary cortisol lasting as long as therapy probably regulating the inflammatory cascade. Lastly, teriparatide has proven to accelerate fracture healing and have a potential effect in increasing bone volume within joints and inhibiting articular cartilage degeneration.

Until now we have treated nine patients, six of which have exceeded one year of follow up and one over two years. Of these seven patients, two of them with primary hip osteonecrosis, two with post traumatic knee osteonecrosis, two with CRPS type 1 of the knee and one with subchondral insufficiency fracture. Concomitant therapy was with sysadoas, intraarticular hyaluronate and analgesics as needed. All patients experienced a rapid response in terms of pain and progressive recovery of joint function. After three months, teriparatide was discontinued with the only indication to rehabilitation and chondroprotection. MRI at three months showed an almost complete resolution of the initial consensual to the clinical response. Three patients underwent control at 1 year which shows no progression. We believe that teriparatide is considered as an alternative treatment to refractory BMEs, although further confirmation of efficacy is needed.

References:

9. Schaefer PW, Grant PE, González R. G. MRI findings in the subchondral bone marrow: A discussion of conditions including transient osteoporosis, transient bone marrow edema syndrome, SONK, and shifting bone marrow edema of the knee. Seminars in Musculoskeletal Radiology, 10 (2006), pp 177-186