References:
1- Lazaretti-Castro M. The diagnosis of primary hyperparathyroidism in developing countries remains in the past century: still with bones, stone and groans. Arch Endocrinol Metab. 2020 Apr;64(2):101-102.
2- Iacobone M, Scerrino G, Palazzo FF. Parathyroid surgery: an evidence-based volume-outcomes analysis: European Society of Endocrine Surgeons (ESES) positional statement. Langenbecks Arch Surg. 2019 Dec;404(8):919-927.
3- Bilezikian JP, Khan AA, Silverberg SJ, Fuleihan GE, Marcocci C, Minisola S, Perrier N, Sitges-Serra A, Thakker RV, Guyatt G, Mannstadt M, Potts JT, Clarke BL, Brandi ML; International Workshop on Primary Hyperparathyroidism. Evaluation and Management of Primary Hyperparathyroidism: Summary Statement and Guidelines from the Fifth International Workshop. J Bone Miner Res. 2022 Nov;37(11):2293-2314

MTE7

HOW CAN WE OPTIMIZE FRACTURE HEALING?

A. Kurth[1]

[1]Dep. of Orthopaedic and Trauma Surgery, Marienhaus Klinikum, Mainz, Germany

Osteoporosis drugs play a significant role in managing bone health and fracture healing in individuals with osteoporosis. Osteoporosis is a condition characterized by weakened bones, increasing the risk of fractures. Fracture healing can be compromised in individuals with osteoporosis due to poor bone quality and density. Here's how osteoporosis drugs may impact fracture healing:

Antiresorptive Drugs work by inhibiting bone resorption, thereby slowing down bone loss. Common antiresorptive drugs include bisphosphonates (such as alendronate, risedronate, zoledronate), selective estrogen receptor modulators (SERMs) like raloxifene, and denosumab (a monoclonal antibody targeting RANKL). While these medications can help prevent further bone loss and reduce fracture risk in osteoporosis patients, they may also affect bone remodeling during fracture healing. Some studies suggest that long-term use of bisphosphonates, for example, might delay fracture healing due to their suppressive effect on bone turnover. However, the clinical significance of this delay in healing remains a topic of debate.

Anabolic agents such as teriparatide and abaloparatide work by stimulating bone formation, thereby increasing bone density and strength. These drugs are often used in individuals with severe osteoporosis or those who have experienced fractures despite treatment with antiresorptive medications. Anabolic agents may have a positive impact on fracture healing by promoting bone formation and remodeling, potentially accelerating the healing process. Preclinically, Scl-Ab (Romosozumab) rich osteogenic effects and
has shown positive effects on bone healing in rodent models. However, two clinical have and failed to show positive effects in the femur and tibia.
Some treatment approaches involve combining antiresorptive and anabolic drugs to maximize bone density and strength while minimizing the risk of fractures. This combination therapy may offer benefits in both preventing fractures and supporting fracture healing, though more research is needed to fully understand its effects.
The timing of osteoporosis drug initiation in relation to fracture occurrence may influence fracture healing. Initiating treatment promptly after a fracture occurs may help optimize bone healing and reduce the risk of future fractures.
The impact of osteoporosis drugs on fracture healing may vary depending on individual factors such as age, overall health, severity of osteoporosis, and the specific characteristics of the fracture. Healthcare providers must consider these factors when determining the most appropriate treatment approach for each patient.

In summary, while osteoporosis drugs play a crucial role in managing bone health and reducing fracture risk, their effects on fracture healing can be complex and may vary depending on the specific medication, timing of treatment, and individual patient factors.

MTE8

CRITICAL ROLE OF EXERCISE IN POST FRACTURE MANAGEMENT

O. Bruyère[1], D. Pinto[2]

[1]WHO Collaborating Center for Public Health aspects of musculo-skeletal health and ageing, Division of Public Health, Epidemiology and Health Economics, University of Liège, Liège, Belgium, [2]Department of Physical Therapy, Marquette University, Milwaukee, United States

Fractures are a significant health problem, often requiring comprehensive management strategies to ensure optimal recovery and long-term outcomes. This presentation will examine the central role of exercise in post-fracture management, highlighting its multiple benefits in enhancing rehabilitation and preventing complications. The presentation will begin with an exploration of the physiological effects of fractures on the musculoskeletal system, highlighting the potential for muscle wasting, joint stiffness and overall functional decline. The importance of early mobilisation and the incorporation of targeted exercise programmes in mitigating these adverse effects will be highlighted. A detailed review of evidence-based exercise interventions tailored to specific fracture types will follow. From weight-bearing exercises for lower extremity fractures to range-of-motion exercises for upper extremity injuries, the lecture will provide practical insights into designing rehabilitation programmes that optimise healing and restore function. In the broader context of global rehabilitation, the session will extend its focus beyond exercise to include physiotherapy, nutrition and education. Participants will gain a comprehensive understanding of how the synergy between these elements contributes to

a holistic and effective approach to post-fracture care. The integration of technology and innovative approaches will also be explored, providing healthcare professionals with actionable insights to optimise patient outcomes in the evolving landscape of post-fracture rehabilitation.

MTE9

TRANSGENDER MEDICINE: KEY CHALLENGES IN THE MANAGEMENT OF MUSCULOSKELETAL DISEASE

J.-M. Kaufman[1]

[1]Department of Endocrinology, Ghent University Hospital, Ghent, Belgium

Transgender or trans persons are people with experienced gender identity not aligned with their assigned sex at birth: trans men are assigned female at birth but self-identify as male; trans women are assigned male at birth but identify as female; non-binary trans persons identify as neither exclusively male or female. In addition to social transition, trans persons may seek gender-affirming medical care, i.e. hormonal treatment and/or surgery inducing and maintaining body changes more congruent to the self-identified gender. Gender-affirming hormonal treatment (GAHT) in trans men consist of testosterone treatment; GAHT in trans women consist of a testosterone-lowering drug [GnRH analogue (GnRHa), cyproterone acetate or spironolactone] and estradiol. Hormonal treatment of transgender adolescents consists of suppression of pubertal development with a GnRHa followed, if gender dysphoria persists, by GAHT usually from around age 16y. Hormonal treatment in non-binary trans people, who represent a substantial proportion (up to 20%) of trans persons, tend to be tailored to the individual needs of the trans person (e.g. partial masculinisation, partial feminisation) using various non-standardized treatment regimens. Considering the major role of sex steroid hormones in the regulation of both body composition and bone homeostasis, the potential musculoskeletal impact of GAHT deserves attention.

Trans women before initiation of any treatment have a lower lean mass, muscle area and strength, and lower areal (DXA) and volumetric (peripheral QCT) bone mineral density (BMD), a smaller cortical bone size and a higher prevalence of low BMD and osteoporosis compared to healthy cis men. This deficit has been attributed to lifestyle-related factors, particularly a low level of physical activity. During long-term GAHT, there is further modest decrease of muscular mass and physical performance towards values comparable to those in cis women, while pretreatment BMD is well maintained or slightly increased. Fracture risk in trans women ≥50y is greater than in cis men and like that in cis women. In treatment naïve trans men muscle mass and strength tend to be slightly greater and BMD is not different compared to cis women. Muscle mass and strength increase, and BMD is maintained, while cortical bone size might slightly increase during long-term GAHT with testosterone. Adolescent trans girls but not trans boys have a lower lean body mass before initiation of treatment, which increases upon GHAT in trans boys and changes only modestly in trans girls. Pretreatment BMD is decreased in trans girls but not in trans boys. GnRHa monotherapy impairs physiologic pubertal BMD increase, resulting in decrease of BMD Z-scores both in trans girls and boys. Upon initiation of GAHT BMD and Z-scores increase with at least partial recovery. Nevertheless, there is a high prevalence of low BMD in young adult trans girls. There is no reliable data on the musculoskeletal effects of individualized, non-standardized GAHT applied in non-binary trans people.

In conclusion, GAHD in adult trans persons according to current guidelines has no detrimental musculoskeletal effects, whereas there is still a knowledge gap as to the longer-term effects on bone health in adolescents. Bone health deserves attention in adult and adolescent trans women because of increased risk of low BMD and osteoporosis. In addition to the general bone health-promoting measures such as adequate intake of calcium and vitamin D, adequate physical activity, avoidance of alcohol and smoking, strategies to optimize bone health include monitoring of adequacy of sex steroid exposure and patient compliance for GAHT. Systematic DXA screening is not advised, but in presence of risk factors for osteoporosis the threshold to perform DXA should be low, in particular in trans women. Moreover, close monitoring is advisable for non-binary trans persons on individualized GHAT schemes often involving steroid hormone dosages suboptimal for maintenance of musculoskeletal health. Treatment decisions for trans persons with high fracture risk scan be based on the guidelines for osteoporosis in the general population.

MTE10

ACHIEVING OPTIMAL MUSCULOSKELETAL HEALTH IN HIV

E. Biver[1]

[1]Service of Bone Diseases, Geneva University Hospitals and Faculty of Medicine, Geneva, Switzerland

Life expectancy of people living with HIV (PLWH) is now close to that of the HIV-uninfected population. As a result, age-related musculoskeletal conditions, including osteoporosis and sarcopenia, are increasing in PLWH. However, most studies investigating musculoskeletal health in PLWH were performed before the latest developments in antiretroviral therapies (ART). Osteoporosis in PLWH is mainly driven by a combination of classical risk factors of bone fragility, very widespread in this population, and risk factors specific to HIV. Most of bone loss occurs during virus replication and during immune reconstitution at ART initiation, which both increase osteoclast activity. Abnormalities in bone formation and mineralization have also been shown in histomorphometric studies in untreated PLWH. The risk of fracture is higher in PLWH and increases about 10 years earlier compared to the general population. Measurement of bone mineral density (BMD) is the first line tool for assessing fracture risk in postmenopausal women, men above 50 years, and other PLWH with clinical risk factors for osteoporosis. FRAX underestimates fracture probability in PLWH. General preventive measures to optimize musculoskeletal health include the promotion of physical activity, a balanced diet, the cessation of