Reviewing Advances in Bone Health

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The Bone Health Forum

The Bone Health Forum is a sponsored standalone event that unites top experts from the JAPAC region.

Three osteoporosis experts each presented **recent publications** providing:

1.

New insights and novel approaches in bone health

2.

Real-world evidence and clinical insights

3.

Insights from basic and translational researchin special populations

1. Advances in Osteoporosis Management: Insights from Recent Basic and Translational Research

Peter Ebeling, Monash University, Melbourne, Australia

Antagonising microRNA-19a/b augments PTH anabolic action and restores bone mass in osteoporosis mice[1]

- Anti-microRNA-19a/b may enhance drug efficacy, or serve as a novel osteoporosis therapy by promoting bone formation and reducing resorption

UBAP2 plays a role in bone homeostasis through the regulation of osteoblastogenesis and osteoclastgenesis[3]

- Newly identified gene, *UBAP2*, regulates bone remodelling
- Serum UBAP2 levels may aid osteoporosis diagnosis

WNT modulating gene silencers as a gene therapy for osteoporosis, bone fracture, and critical sized bone defects[2]

- Bone-targeted adeno-associated viruses deliver SHN3 and/or sclerostin to osteoblast cells, enhancing WNT/β-catenin signalling
- Potential treatment for osteoporosis, bone fracture healing, and critical-sized bone defects

Relationships between sclerostin and morphometric vertebral fractures, bone mineral density, and bone microarchitecture in postmenopausal females[4]

- High serum sclerostin levels in postmenopausal females were paradoxically linked to improved bone microarchitecture, BMD, and bone strength
- No association between serum sclerostin and the prevalence of morphometric vertebral fractures

2. Real-world Management of Osteoporosis: Latest Evidence and Clinical Insights

Hua Yue, Shanghai Jiao Tong University School of Medicine, China

Effects of zoledronate on bone mineral density and bone turnover after long-term denosumab therapy: observations in a real-world setting[5]

- Rebound bone loss plateaus after 4–6 years of denosumab treatment, regardless of subsequent zoledronate therapy frequency

Baseline serum P1NP level is associated with the increase in hip BMD seen with romosozumab treatment in previously untreated females with osteoporosis[6]

- A baseline P1NP level of >53.7 µg/L is associated with ≥3% increased hip BMD following romosozumab treatment

Economic evaluation of four treatment strategies for postmenopausal patients with osteoporosis and a recent fracture in mainland China: a cost-effectiveness analysis[7]

- Among patients who are postmenopausal and osteoporotic with a recent fracture, stratified treatment based on fracture risk is more cost-effective than conventional pills

3. Bone Health in Special Populations: New Insights and Novel Approaches

Toshio Matsumoto, Tokushima University, Japan

Diabetes and the benefits of antiresorptive therapy on fracture risk[8]

- Denosumab:
  1) Improves insulin sensitivity by reducing inflammatory cytokines and DPP-4
  2) Reduces the incidence of Type 2 diabetes in patients with osteoporosis in line with other antiresorptive treatments

One-year romosozumab treatment followed by 1-year denosumab treatment for osteoporosis in patients on haemodialysis: an observational study[9]

- Romosozumab followed by denosumab effectively increases BMD in patients with CKD without dose adjustment

Teriparatide followed by denosumab in premenopausal idiopathic osteoporosis: bone microstructure and strength by HR-pQCT[10]

- Teriparatide followed by denosumab enhances trabecular microstructure, increases cortical area, and improves bone strength, but raises cortical porosity

Key:
BMD: bone mineral density; BHF: Bone Health Forum; CKD: chronic kidney disease; DPP-4: dipeptidyl-peptidase 4; HR-pQCT: high-resolution peripheral quantitative CT; JAPAC: Japan and Asia-Pacific; PTH: parathyroid hormone; P1NP: procollagen type 1 N propeptide; RNA: ribose nucleic acid; SHN3: Schnurri-3; UBAP2: ubiquitin-associated protein 2; WNT: wingless and Int-1.

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4. Liang H et al. Relationships between sclerostin and morphometric vertebral fractures, bone mineral density, and bone microarchitecture in postmenopausal women. Arch Osteoporos. 2023;18(1):57.
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9. Saito T et al. One-year romosozumab treatment followed by one-year denosumab treatment for osteoporosis in patients on hemodialysis: an observational study. Calcif Tissue Int. 2023;112(1):34-44.
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Meeting Information

- The BHF had ~100 live attendees, with content available on demand via the BHF platform; this was a unique moment to share some of the recent advances in bone health
- 100% of attendees strongly agreed that the meeting will impact their clinical practice*

Footnote: * Data on file