



PP-B-05

HYPOKALEMIA AS A NEGLECTED CAUSE OF METABOLIC BONE DISEASE: TWO CASE REPORTS

<https://doi.org/10.15605/jafes.037.AFES.36>

Amanda Hardigaloeh¹, **Em Yunir**², **Tri Juli Edi Tarigan**², **Aida Lydia**³, **Suryo Anggoro**⁴, **Ibrahim Agung**⁵

¹Faculty of Medicine Universitas Indonesia - Cipto Mangunkusumo Hospital, Jakarta, Indonesia, Jakarta, Indonesia

²Division of Endocrinology, Metabolism, and Diabetes, Department of Internal Medicine, Faculty of Medicine Universitas Indonesia - Cipto Mangunkusumo Hospital, Jakarta, Indonesia

³Division of Nephrology, Department of Internal Medicine, Faculty of Medicine Universitas Indonesia - Cipto Mangunkusumo Hospital, Jakarta, Indonesia

⁴Division of Rheumatology, Department of Internal Medicine, Faculty of Medicine Universitas Indonesia - Cipto Mangunkusumo Hospital, Jakarta, Indonesia

⁵Department of Physical Medicine and Rehabilitation, Faculty of Medicine Universitas Indonesia - Cipto Mangunkusumo Hospital, Jakarta, Indonesia

BACKGROUND

Hypokalemia occurs secondary to several possible causes that ultimately lead to excessive potassium loss in the body. Long-standing hypokalemia via renal losses could lead to metabolic bone disease (MBD).

CASES

We report two cases of young patients who came in due to fractures. Both patients had a history of lower extremity paralysis. Biochemical analysis showed chronic hypokalemia and metabolic acidosis with normal anion gap, suggestive of renal tubular acidosis (RTA). Patient 1 had impaired renal function with a normal vitamin D level, while patient 2 had normal renal function but had low vitamin D. Genetic testing for RTA could not be performed due to resource constraints. Their MBD was confirmed by radiological assessment. Treatment of both patients involved correction of the acidosis and physical rehabilitation without the need for orthopedic intervention.

RTA is the most common cause of hypokalemia. It is characterized by a normal anion gap metabolic acidosis and renal potassium wasting. Chronic uncorrected acidosis could increase RANKL expression that will promote the differentiation of osteoclasts, leading to increased bone resorption. The most common skeletal manifestations of uncorrected RTA are rickets or osteomalacia, fracture, pseudofracture, secondary osteoporosis and sclerotic bone disease. Since our two patients came in with severe MBD, it would be difficult to reverse these changes and revert to optimal skeletal function.

CONCLUSION

In a patient with chronic hypokalemia and metabolic bone disease, RTA must always be considered as a cause. Increasing awareness regarding the causes of hypokalemia and its long-term impact on the body may facilitate early diagnosis and treatment, thereby preventing permanent sequelae such as MBD.

PP-B-06

ROLE OF BONE MINERAL DENSITY ADDED TO FRACTURE RISK ASSESSMENT TOOL IN THERAPEUTIC DECISION-MAKING FOR OSTEOPOROSIS IN A MALAYSIAN POPULATION

<https://doi.org/10.15605/jafes.037.AFES.37>

Mariyam Niyaz¹, **Shanmugam Mariyappan**¹, **Hew Fen Lee**², **Yeap Swan Sim**², **Shanty Velaiutham**³, **Subashini Thambiah**⁴, **Shubash Shander Ganapathy**⁵, **Jeyakantha Ratnasingam**¹

¹University Malaya Medical Centre, Kuala Lumpur, Malaysia

²Puchong Medical Specialist Centre, Puchong, Malaysia

³Hospital Pulau Pinang, Georgetown, Malaysia

⁴Universiti Putra Malaysia, Serdang, Malaysia

⁵Institute of Public Health, Kuala Lumpur, Malaysia

OBJECTIVES

To examine the role of bone mineral density (BMD) added to Fracture Risk Assessment tool (FRAX) in therapeutic decision-making for osteoporosis in a Malaysian population.

METHODOLOGY

Data were collated from four centers in Malaysia. This study included individuals ages 40 to 90 years old who underwent routine BMD. Patients who had metabolic bone disease or were on anti-osteoporotic treatment were excluded. Ten-year probability of major osteoporotic fractures (MOF) and hip fractures (HF) was calculated using FRAX+BMD and FRAX-BMD. Treatment recommendations for FRAX+BMD and FRAX-BMD were compared and categorized as 'concordant' and 'discordant.'