

SP403

**FUNCTIONAL IMPAIRMENT AND RISK OF FALLING IN THE HEMODIALYSIS UNIT**

Karsten Vanden Wyngaert<sup>2</sup>, Amaryllis Van Craenenbroeck<sup>1,4</sup>, Sunny Eloot<sup>3</sup>, Wim Van Biesen<sup>3</sup>, Patrick Calders<sup>2</sup>

<sup>1</sup>Nephrology, Antwerp University Hospital, Antwerp, Belgium, <sup>2</sup>Rehabilitation Sciences and Physiotherapy, Ghent University, Ghent, Belgium, <sup>3</sup>Nephrology, Ghent University Hospital, Ghent, Belgium and <sup>4</sup>Nephrology, University of Antwerp, Edegem, Belgium

**INTRODUCTION AND AIMS:** Patients with end stage renal disease are confronted with impaired physical functioning and higher fall rates than the general population. A myriad of factors partly underlie this observation, including muscle dysfunction, neuropathy, renal anemia and cardiovascular complications. The identification of possibly reversible factors is essential for the development of preventive and therapeutic strategies with the ultimate goal of improving patients' prognosis. This study explores the severity of functional impairment and risk of falling in a representative sample of Flemish hemodialysis (HD) patients, as well as their relation with various biomarkers and medication use.

**METHODS:** In 114 prevalent adult dialysis patients (n=76 Ghent, n=38 Antwerp), comorbidity, routine serum biology and drug intake were related to muscle force (quadriceps, handgrip force), functional capacity (6-Minute Walking Test, Sit To Stand Test) and risk of falling (Tinetti and Sit To Stand Test).

**RESULTS:** Mean age of the subjects (68% male) was  $67.4 \pm 15.9$  years with a median dialysis vintage of 26 months (10.5 - 56). Forty six percent of patients suffered from diabetes, and 70% had a history of cardiovascular disease. On average, patients took  $8 \pm 4$  medications a day. Quadriceps force was severely impaired ( $< 72\%$  of predicted) in 87% and handgrip strength in 36% of the studied dialysis patients. There was a negative correlation between quadriceps force and dialysis vintage ( $r=-0.193$ ). Moreover, quadriceps force related with serum calcium ( $r=0.326$ ), fT4 ( $r=0.269$ ) and PTH levels ( $r=-0.201$ ). Functional capacity was severely diminished (6-MWT  $< 350m$ ) in 58% of the patients. 6-MWT adjusted for gait impairments using Tinetti-test was related to metabolic acidosis (serum anion gap,  $r=-0.308$ ), freeT4 ( $r=0.331$ ) and PTH level ( $r=-0.234$ ). Fifty-six percent of the patients had a higher risk of falling (STS  $> 15s$ ). Patients with a higher risk of falling were more anemic, had stronger impairment of iron homeostasis and were longer on dialysis. Daily drug intake correlated with functional capacity (6MWT,  $r=-0.246$ ) and risk of falls (STS,  $r=-0.345$ ). As expected, patients with multiple comorbidities (cardiovascular, musculoskeletal, diabetes) showed a more severe functional impairment compared to their counterparts based on 6-MWT, STS and Tinetti.

**CONCLUSIONS:** More than 50% of the studied HD patients suffer from severe functional impairment and increased risk of falling. The observed relationships with markers of CKD-MBD, thyroid state and metabolic acidosis merit further investigation.