Introduction and Aims: In a previous study we found that deambulation as categorized “independent”, “assisted” or total inability to deambulate (bedridden/wheelchair) captures as much as the 13% of the explained variability in the death risk in dialysis pts(Kidney Blood Pressure Res 2014). Since information about ambulatory ability is not applied for risk stratification/calculation in dialysis pts, we explored the prognostic power of deambulation (as defined above) in the whole cohort of pts who were evaluated for eligibility into a physical exercise program (EXCITE study) in 11 Nephrology units in Italy which were representative of the Italian dialysis population. From a source population of 714 dialysis pts, 88 were excluded because of the lack of information on deambulation or on survival time. Thus, the present analysis included 626 dialysis pts.

Methods: Patients had an mean age of 67±14 yrs (63% M; 24% diabetics) and had been on dialysis for a median time of 3.7 yrs. Deambulation was assessed at baseline. Mortality data were collected over a median follow-up of 3.4 yrs. Survival analysis was performed by 1) Cox model and 2) by appropriate methods testing the predictive value of prognostic factors i.e. Harrell\'C index (a measure of discrimination), Hosmer-Lemeshow Test (a measure of calibration), Net Reclassification Index (NRI) (a measure of risk reclassification) and explained variation in mortality (an index combining discrimination and calibration).

Results: At baseline, 469 pts(75%) had no deambulation impairment, 97(15%) deambulated only if assisted and 60(10%) were bedridden/wheelchair. During the follow-up, 228 pts died. On univariate COX analysis, the hazard ratio (HR) of mortality increased in parallel with deambulation impairment, being lowest in pts with no deambulation impairment (HR:1, reference group), intermediate in those who needed of assistance (HR:2.73, 95% CI: 2.00-3.73) and highest in bedridden/wheelchair pts (HR:3.32, 95% CI:2.33-4.72)(P for trend<0.001). The deambulation-death link held true in a multiple Cox model adjusting for Framingham risk factors, background CV comorbidities, and ESRD-related (Hb, albumin, phosphate, CRP and dialysis vintage) risk factors (assisted deambulation, HR:1.82,95% CI 1.29-2.57; bedridden/wheelchair, HR:2.82,95% CI 1.92-4.16,P for trend<0.001). To assess the additional prognostic value of deambulation impairment for predicting death, beyond and above standard risk factors, we constructed 2 risk prediction scores: one based on Framingham risk factors, background CV comorbidities, and ESRD-related risk factors (reduced model) and one based on these risk factors plus deambulation ability (extended model). The reduced model had a 69% discriminatory power for predicting death. Deambulation ability increased the discriminatory power of the model from 69% to 71% and such an increase was accompanied by a marked improvement in data fitting (P<0.001). Furthermore deambulation ability produced a concomitant improvement in model calibration (+36%), increased the explained variation in mortality from 27% to 33% (P<0.001) and improved (+19%) the reclassification ability of the model (P<0.001).

Conclusions: Simple assessment of deambulation ability holds substantial prognostic power in dialysis pts and adds meaningful prognostic power over and above background CV comorbidities, classical and ESRD-related risk factors. Considering deambulation may improve risk stratification in dialysis pts and may refine the prognostic power of death risk calculators in this population.