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24 hour-pulse-wave-velocity-measurement as a mortality predictor in ESRD patients

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Background: Arterial stiffness is a known cardiovascular risk factor in end-stage-renal-disease (ESRD) patients. ESRD patients in need of dialysis are generally of an advanced age, which combined with disease factors lead to a high mortality rate. Arterial stiffness, as assessed by pulse wave velocity (PWV), has been found to be linked to arterial hypertension. Here, we propose that PWV can be used to predict all-cause mortality in ESRD patients.

Methods: In this prospective study, 235 patients from 8 dialysis centers in Munich were placed under observation. As a baseline, data concerning age, sex and comorbidities were recorded. 164 patients underwent 24 hours monitoring of PWV with Mobil-O-Graphs. At the 6-year-follow-up, 108 were deceased, 47 were loss-to-follow-up (LTFU) and 80 were still alive and on active dialysis. The LTFU group included patients who received kidney transplantation or who underwent a change of dialysis center.

Results: Statistical analysis showed that patients with a PWV>10 m/s had a median survival (as defined by half of the included patients in a group being deceased) of 1362 days (standard deviation = 281). The median survival for patients with a PWV<10 m/s could not be assessed to-date as \sim 51% of these patients were still alive after 72 months.

Conclusion: PWV was found to represent an effective measure to predict all-cause mortality in ESRD. Measurements with Mobil-O-Graph are easily performed and reproducible, therefore monitoring PWV instead of arterial hypertension to determine efficacy of treatment could be an important aspect in future treatment of ESRD patients.

Biography

Louisa Maria Nerl studies Medicine in Munich. First two years of the course, she studied at the 'Ludwig-Maximilian-Universität' (LMU) afterwards at the 'Technische Universität München' (TUM). In 2015, she studied one semester abroad at the University of Bern in Switzerland. In September 2016, she joined Prof. Dr. Schmaderer's research team in the TUM Graduate School. From October 2017, she continued her research on a full-time basis.

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