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Pre-dialysis blood pressure measurements misclassify hypertension in about 1/3 of hemodialysis patients

New NDT study [1] shows that `normal` pre-dialysis blood pressure measurement is not reliable. "Without performing extended ambulatory BP recordings (44h - 48h) we approvingly accept an error rate of about 30% in the diagnosis of hypertension in dialysis patients, a highly vulnerable patient group with a dramatically elevated cardiovascular risk. This is why EURECA-m recommends ambulatory blood pressure monitoring as gold standard for the diagnosis for hypertension in hemodialysis patient."

There is a bidirectional relationship between high blood pressure and chronic kidney disease (CKD). Hypertension aggravates CKD progression. On the other hand, CKD can cause hypertension, because our kidneys do not only `detox` our bodies, but also regulate the blood pressure. This is, why nephrologists are `core experts` when it comes to uncontrolled or difficult-to-treat blood pressure.

In hemodialysis patients, hypertension is very common, because the kidneys – and with them the main blood pressure regulation mechanism – stopped working.

"High blood pressure is dangerous, also in dialysis patients. It can lead to severe complications like heart attacks and strokes", explains Professor Carmine Zoccali, president of the ERA-EDTA. "The monitoring of blood pressure levels is therefore an essential part of the care of these patients. The European Cardiovascular and Renal Medicine (EURECA-m) recommends the 48-h ambulatory blood pressure monitoring (ABPM) in these patients. Our new data strongly support this recommendation."

The EURECA-m working group has previously published a study [1] in *ndt*, in which 396 hemodialysis patients underwent 48-h ABPM. It showed that the prevalence of hypertension in dialysis patient was very high (84.3%). Although similar rates have been seen when blood pressure levels were measured in the dialysis center before the dialysis

treatment, the sensitivity and specificity of 48-h ABPM proved to be higher. Sensitivity means that patients with hypertension are reliably detected and specificity means that those who do not suffer from hypertension are also correctly identified. Obviously, the 'normal', pre-dialysis measurement does not have a sufficient sensitivity and specificity in dialysis patients. About 30% of the patients are misdiagnosed, when the blood pressure is measured in the dialysis center before each dialysis treatment.

Why is that the case? The new EURECA-m study [1] showed that 18.2% of the patients suffered from "white coat hypertension": They do not have hypertension in "real life", but develop high blood pressure levels as soon as their blood pressure is measured by a doctor or nurse. Vice versa, 14.1% of the patients suffered from "masked hypertension", in which high blood pressure values occur often during the nights, only. Therefore, this hypertension cannot be detected before the daily dialysis treatment. Only the 48-h ABPM can reliably detect a 'masked hypertension' as well as the 'white coat hypertension'.

"If we do not perform a 48-h ABPM, there is the risk that we treat patients with 'white coat hypertension', who do not need any medication and that we do not treat those with a 'masked hypertension' or with nocturnal hypertension, who need the treatment. In short: Without performing extended ambulatory BP recordings (44h - 48h) we approvingly accept an error rate of about 30% in the diagnosis of hypertension in dialysis patients, a highly vulnerable patient group with a dramatically elevated cardiovascular risk", explains Professor Zoccali, ERA-EDTA president and co-author of the new study. "This is why EURECA-m recommends 48-h ambulatory blood pressure monitoring as gold standard for the diagnosis for hypertension in hemodialysis patient."

[1] <https://academic.oup.com/ndt/advance-article-abstract/doi/10.1093/ndt/gfy147/5051715?redirectedFrom=PDF>

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About ERA-EDTA

With more than 7,500 members, the ERA-EDTA ("European Renal Association – European Dialysis and Transplant Association") is one of the biggest nephrology associations worldwide and one of the most important and prestigious European Medical Associations. It supports basic and clinical research in the fields of clinical nephrology, dialysis, renal transplantation and related subjects. It also supports a number of studies as well as research groups and has founded a special "Fellowship Program" for young investigators as well as grant programs. In order to involve young nephrologists in all its activities, ERA-EDTA has created the "Young Nephrologists' Platform" (YNP), a very active committee whose board includes members who are 40 years old or younger. In addition, it has established various working groups to promote the collaboration of nephrologists with other medical disciplines (e.g. cardiology, immunology). Furthermore, a "European Renal Best Practice" (ERBP) advisory board was established by the ERA-EDTA to draw up and publish guidelines and position statements. Another important goal of the ERA-EDTA is education: The series of CME courses combined with the annual congress offer an attractive scientific program to cover the need for continuous medical education for doctors working in the fields of nephrology, dialysis and transplantation. The association's journals, NDT (Nephrology, Dialysis, Transplantation) and CKJ (Clinical Kidney Journal), are currently the leading nephrology journals in Europe; furthermore NDT-Educational is the online educational journal of the society, with free access for all users, as well as being a very important and useful feature of the NDT-Educational "Literature Review". The ERA-EDTA Registry is a large epidemiologic database comparing countries by assessing nephrology practices throughout Europe. ENP, the European Nephrology Portal, is the latest new initiative of ERA-EDTA, where all those interested in the activities of the Society can find everything that is happening, all in one place. Finally, ERA-EDTA is a member of the European Kidney Health Alliance (EKHA), a consortium of patients, nurses and foundations relating to renal issues that actively interacts with the European Parliament. For more information, please visit www.era-edta.org