EDITORIAL

Chronic Kidney Disease (Not) on the Agenda

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Editorial to accompany the articles:

Girndt et al.:
The prevalence of renal failure—results from the German Health Interview and Examination Survey for Adults, 2008–2011 (DEGS1)

and

Hoffmann et al.:
Renal insufficiency and medication in nursing home residents—a cross-sectional study (IMREN)
in this issue of *Deutsches Ärzteblatt International*

Around one-quarter of the total blood volume flows through the two kidneys every day in a healthy person. This allows the approximately two million glomeruli to filter about 180 L of virtually protein-free primary urine, of which about 99% is reabsorbed during the passage through the tubular system. At first glance, much of this renal function performance seems superfluous: the glomerular filtration rate (GFR) must drop below 10% to be incompatible with life over the long term and to require renal replacement therapy in the form of dialysis or transplantation. However, it has become increasingly clear in the past 10 years that even a decline of GFR by one-third is associated with a significant risk of cardiovascular disease and a shortened life expectancy. A similar situation is observed for a permeability dysfunction of the glomerular filter, which leads to albuminuria. A reduced GFR and elevated albuminuria are independent but mutually potentiating risk factors (1). The presence of a reduced GFR of below 60 mL/min/1.73 m² for at least 3 months (irrespective of albuminuria), or albuminuria of >30 mg/day (regardless of the GFR), meets the criteria of chronic kidney disease (CKD) (1, 2).

An essential prerequisite to determining these associations and to implementing this knowledge into clinical practice is the ability to estimate the GFR from the serum concentration of creatinine (3). Unlike the long-established Cockcroft-Gault formula, newer formulas for GFR estimation (MDRD, CKD-EPI formulas) do not require body weight measurement, allowing them to be integrated in the laboratory routine without additional data acquisition.

Relevant also due to its frequency

CKD is relevant not only because of the poor prognosis for those affected, but also because of its frequency. Worldwide, various studies have shown that it has a prevalence in the general population of 10% to 15%, with an increasing tendency (4, 5). Until now, however, there has been very little data about the frequency of impaired kidney function in Germany. Two articles in this issue of *Deutsches Ärzteblatt International* now address this gap (6, 7).

Girndt and colleagues used data from a population representative survey, with more than 7000 participants aged 18 to 79 years, to determine the prevalence of reduced GFR and elevated albuminuria (6). The study shows that nearly 13% of the population in Germany is

affected. The proportion of those with a reduced GFR (of <60), however, is lower than in previous studies from the United States (8), which may be due in part to the methodological aspects. A limitation of the study is that albuminuria detection in the original 2008–2011 survey was carried out using semi-quantitative test strips. The better (and currently recommended) alternative is to quantitatively determine albumin in random urine samples (mg albumin/g creatinine), but the authors performed various correction methods to arrive at comparable values (6). In addition to the overall frequency of kidney dysfunction, this study shows a clear age dependency, in agreement with previous studies (6, 8). While this is not unusual for chronic diseases, it indicates that the prevalence of kidney damage in the elderly patient populations in general practices and hospitals is significantly higher than average, perhaps even affecting more than one-third.

Almost half of nursing home residents

Similar results come from a complementary study by Hoffman et al., who examined the frequency of renal insufficiency in nursing home residents and found almost half had a reduced GFR of below 60 mL/min/1.73 m² (7). Unfortunately, this study was not able to include data on albuminuria. We know from other studies that a reduced GFR and albuminuria are associated with an increased risk of co-morbidities and mortality even in the elderly, so that these measurements can under no circumstances be considered as „physiological“ (9).

Avoiding disease progression and complications

Unfortunately, improving kidney function through therapeutic intervention is only possible for very few kidney disorders. Thus, in addition to preventative measures, it is critical to develop strategies for people with existing kidney diseases that focus on stopping, or at least slowing down, loss of kidney function, and on avoiding complications and further damage. Such strategies include adequate blood pressure control (which is often difficult in patients with kidney dysfunction), optimal metabolic control, statin therapy for all kidney disease patients over 50 years of age, management of calcium and phosphate balances, and avoidance of severe renal anemia (2, 10). At the same time, acute kidney injuries, such as by dehydration or nephrotoxic substances, have to be avoided, as CKD

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predisposes for acute renal failure, and episodes of acute worsening of kidney function contribute to progressive loss of function in patients with CKD.

The care of kidney patients is complicated by the fact that many drugs are excreted by the kidneys or are potentially nephrotoxic. Therefore, kidney function must be considered when prescribing and determining dosages for medication. In this respect, Hoffmann et al. rightly point out that in many cases, unfortunately, there is insufficient data to allow pharmacotherapy to be adequately adapted to renal function (7).

Not adequately taken into account

Overall, the treatment of kidney patients presents a complex challenge. In this context, it is highly disturbing that Girndt et al. report that only 28% of people with an impaired kidney function in the sampled population were aware of it and that, of those who knew, only two-thirds were receiving medical treatment for it (6). In the study by Hoffmann et al., no information on kidney function could be retrieved for 20% of nursing home residents (7). Although this may be due in part to methodology, the overall picture from these two studies suggests that kidney function and kidney diseases are far from receiving the attention they deserve.

Conflict of interest statement

The author declares that no conflict of interest exists.

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