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be significantly delayed and discussion between the attending clinician and pathologist is then indicated. In such cases, patients should also be informed of the reason for the delayed diagnosis, e.g. the need for ancillary laboratory investigations, to lessen the distress for the patient and the family.

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Renal disease in the elderly – a new entity?

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Chronic renal disease (CRD) in adults is fairly common worldwide. CRD is often associated with cardiovascular mortality, which is increasing. In adults CRD is associated with systemic hypertension, diabetes mellitus and systemic lupus erythematosus (SLE) or glomerulonephritis (GN).^{1,2}

Globally, there is an increasing tendency for patients to reach end-stage renal disease (ESRD). The diagnosis of CRD and ESRD is based on the estimated glomerular filtration rate (eGFR). In the West the population is ageing, e.g. in the USA the elderly will outnumber children within 10 years. Currently, life expectancy for men in Europe is 76.1 years and for women 82.2 years.^{3,4} Although the incidence of ESRD is high in the elderly, progression to renal failure tends to be low.³

The Kidney Disease Outcome Quality Initiative (KDOQI) classification system is based on the reduction of the GFR. The fixed cut-off for abnormalities used in the classification system is for all ages and age-related renal function decline has been

omitted.³ In the elderly it is important to keep in mind that age-related changes occur in the kidney. With ageing there is a gradual structural and functional loss, starting around the age of 40 years, with a decrease in the GFR of 8 ml/min/decade.³

The histological changes that are found in the kidneys of the elderly are a gradual increase in glomerulosclerosis, interstitial fibrosis, tubular atrophy and chronic vascular disease, which is also known as nephrosclerosis. Age-associated changes may, however, also occur with systemic hypertension and diabetes mellitus.³

The presence of CRD in the elderly is increasingly recognised (KDOQI and National Kidney Foundation (NKF)), but staging of the CRD is also important. If the renal disease is recognised earlier, treatment can be improved with a focus on preventing progression.⁴ The more advanced stages of CRD have a poor overall outcome, associated with increased mortality risk and hospitalisation.⁵

In the elderly it is important to establish whether there is progression to renal failure. Decline in renal function with ageing is physiological and not pathological. This must be taken into account before an elderly patient is labelled as having CRD.⁵ However, if the eGFR is below 60 ml/min, even in the elderly, renal disease must be evaluated and managed.⁵

In the elderly there is seldom a single cause for CRD. They often have hypertension and/or diabetes, which is associated with ESRD. Sudden progression of decreased renal function is associated with infections, vasculitic symptoms or changes in medication.⁵

Primary glomerulopathies and vasculitis tend to be increasingly recognised in the elderly and must be included in the differential diagnosis of a patient with progression of renal disease. A renal biopsy may be required.^{5,6} A renal biopsy is regarded as the gold standard in the

evaluation/investigation of a patient with renal disease. It provides the diagnosis, and guides treatment and prognosis.⁶

Requesting a renal biopsy in the elderly is problematic, because the biopsy may reveal only age-related changes.⁶ In the subgroup of patients over the age of 80 this is even more problematic. In this subgroup, however, properly indicated biopsies are almost always worthwhile, because the biopsy provides a diagnosis with therapy options and a prognosis and often prevents the patient receiving unnecessary therapy.⁶

It is important to remember that kidney diseases in adults and in the elderly overlap. A few types of glomerulopathy are more common in the elderly. Membranous and minimal-change glomerulonephritis is more common in the elderly, while other GNs tend to occur in younger adults. SLE renal involvement occurs exclusively in young adults.⁶

Tubulo-interstitial nephritis tends to occur in the elderly owing to age-related changes or the toxic effect of medication.

In the elderly there are some diseases that are more frequent and that require renal biopsy and careful evaluation in order to be excluded.⁶

These diseases include:

- crescentic glomerulonephritis due to ANCA-positive vasculitis
- amyloidosis/myeloma cast nephropathy due to paraproteins from plasma cell dyscrasias or lymphoplasmacytic proliferations
- atherosclerotic/athero-embolic renal disease.

Unfortunately, the elderly person with ESRD has a higher risk of frailty, an increase in syncope and a decrease in memory/increase in dementia. Life expectancy varies between 8.9 and 24 months. These risks may be aggravated by dialysis.⁷

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