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GUIDELINES

The essence of treatment for CKD patients

Abbreviations

ACE	Angiotensin-converting enzyme
ARB	Angiotensin II receptor blocker
CKD	Chronic kidney disease
CVD	Cardiovascular disease
ESKD	End-stage kidney disease
GFR	Glomerular filtration rate

1. Chronic kidney disease (CKD) is defined either as a kidney disorder (proteinuria, etc.) or as decreased kidney function with GFR (glomerular filtration rate) less than 60 mL/min/1.73 m^2 lasting for 3 months or longer.
2. Estimated GFR (eGFR) is calculated using the following formula:
   eGFR (mL/min/1.73 m^2) = $194 \times Cr^{-1.094} \times Age^{-0.287}$ (additional multiplication by 0.739 for women).
3. CKD is a critical risk factor for the development of CVD (cardiovascular disease) as well as ESKD (end-stage kidney disease).
4. A CKD patient should be managed by a multidisciplinary approach in collaboration between primary care physicians and nephrologists.
5. It is desirable that the following cases are referred to nephrologists: (1) proteinuria of 0.5 g/g creatinine or greater, or 2+ or greater; (2) eGFR less than 50 mL/min/1.73 m^2; (3) positive (1+ or greater) for both proteinuria and hematuria.
6. The treatment goal of proteinuria is less than 0.5 g/g creatinine.
7. CKD management should be started with modification of lifestyle (smoking cessation, salt restriction, improvement of obesity, etc.).
8. The goal of blood pressure control is less than 130/80 mmHg and is gradually achieved.
9. Antihypertensive agents of first choice are ACE inhibitors or ARBs. A combination with other antihypertensive agents is applied as needed.
10. In the use of ACE inhibitors or ARBs, a physician should be aware of the risk of an elevation of serum creatinine level and hyperkalemia in CKD patients.
11. In diabetic nephropathy, the target level of hemoglobin A1C should be less than 6.5% in controlling the blood glucose level.
12. LDL cholesterol should be controlled below 120 mg/dL.
13. A physician should consult nephrologists when renal anemia is suspected.
14. A physician should consult nephrologists when prescription of erythropoiesis-stimulating agents or oral adsorbent is contemplated.
15. A physician should reduce the dosage or extend the administration interval depending on kidney function when administering drugs that are eliminated by the kidney.
16. Non-steroidal anti-inflammatory drugs (NSAIDs), contrast media, and dehydration are risk factors for decline in kidney function.