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Innovation in Nephrology (Telemedicine)

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Digitalization is also revolutionizing nephrology. The field of nephrology is uniquely positioned to lead the digital health revolution, moving beyond simple video consultations toward a comprehensive "Digital Nephrology" ecosystem. Telemedicine is not exclusive to face-to-face care but complements face-to-face care and other forms of medical care. Smartphone-based applications provide us with new ways to diagnose and treat patients. Clinical studies have been conducted on telemedicine in nephrology outpatient care, inpatient consultations and hemodialysis, indicating that telemedicine can improve patient satisfaction, leading to enhanced treatment owing to increased adherence and frequency of visits. The key to spreading "telenephrology" (telemedicine in nephrology) is how physical examinations and laboratory/imaging/physiological tests, currently challenging to perform without face-to-face contact, can be substituted with methods optimized for the telemedicine framework.

Development of wearable devices allows us to evaluate physiological parameters of patients at home in a continuous manner. Advanced methods will make collecting data equivalent to laboratory, imaging and physiological tests outside of hospitals possible, including evaluation of the disease by body smell. Creating virtual models of patients, Digital Twins in Nephrology, enables us to predict the disease course and effects of treatment. Future perspectives emphasize "universal design" to ensure that the elderly and those in rural areas can utilize these tools without high digital literacy. Telemedicine has advantages such as facilitating home therapy, reducing patient travel time and costs, and empowering patients. This makes equitable access to care feasible. Digitalization in nephrology holds the promise of earlier detection, more personalized approach, and improved patient experience. With an understanding of the strengths and weaknesses of current telemedicine, we should make full use of it

for better treatment and patient care.

Keywords: digitalization, telemedicine, telenephrology, chronic kidney disease