16 Risk management of CKD: Results from The Japan Specific Health Checkups (J-SHC) Study.

Masahiro Eriguchi[1], Takaaki Kosugi[1], Hisako Yoshida[2], Hiroyuki Tamaki[1], Hikari Tasaki[1], Masatoshi Nishimoto[1], Masaru Matsui[1], Ken-ichi Samejima[1], Kazuhiko Tsuruya[1]

[1] Department of Nephrology, Nara Medical University, Nara, Japan.
[2] Department of Medical Statistics, Osaka Metropolitan University Graduate School of Medicine, Osaka, Japan.

IDENTIFING INFORMATION

Name: Masahiro Eriguchi

PROFESSIONAL BACKGROUND (WORK HISTORY)

Apr/2020-present	Lecturer, Department of Nephrology, Nara Medical University, Kashihara, Japan
Apr/2018-Mar/2020	Assistant professor, Department of Nephrology, Nara Medical University, Kashihara, Japan
Apr/2017-Mar/2018	Assistant professor, Department of Medicine and Clinical Science, Kyushu University, Fukuoka, Japan
Apr/2015-Mar/2017	Postdoctoral fellow, Department of Biomedical Sciences, Cedars-Sinai Medical Center, Los Angeles, CA, USA
Apr/2011-Mar/2015	Postgraduate student, Department of Medicine and Clinical Science, Kyushu University, Fukuoka, Japan
Apr/2009-Mar/2011	Medical Staff, Department of Medicine and Clinical Science, Kyushu University Hospital, Fukuoka, Japan
May/2002-Mar/2009	Medical Staff, Matsuyama Red Cross Hospital, Matsuyama, Japan
May/2001-May/2002	Medical Staff, Department of Internal Medicine Saiseikai Yahata General Hospital, Kitakyusyu, Japan
May/2000-May/2001	Resident, Department of Medicine and Clinical Science, Kyushu University, Fukuoka, Japan

In this session we are talking about risk factors that are associated with chronic kidney disease (CKD) using a 7-year longitudinal cohort study based on data from approximately one million participants (aged 40–74 years) in the Japan Specific Health Checkups (J-SHC) program, conducted nationwide in Japan between 2008 and 2014. Our analysis focused on the associations of CKD with lipid disorders, blood pressure levels, urine abnormalities, physical activity habits, and age-related changes in body morphology. The mean age of the participants was 64 years, and the prevalence of CKD at baseline was 18%. During the follow-up period, 2.8% of participants experienced a decline in estimated glomerular filtration rate (eGFR) of 30% or more from baseline, and 1.1% of participants died.

Among individuals with CKD, low high-density lipoprotein (HDL) cholesterol and hypertriglyceridemia were common lipid abnormalities and were associated with a higher incidence of CKD progression. Notably, CKD participants also experienced new-onset of these dyslipidemias, suggesting a reciprocal relationship where CKD progression and these lipid disorders mutually exacerbate each other. Regarding exercise habits, consistent physical activity was associated with a slower decline in eGFR, irrespective of baseline eGFR or proteinuria. Furthermore, exercise conferred a greater protective effect against mortality in CKD participants compared to those without CKD. Pulse pressure (PP), a surrogate marker of vascular stiffness, influenced the association between diastolic blood pressure (DBP) and kidney outcomes, which has been inconsistently reported in previous studies. Specifically, we observed that the association between DBP and kidney outcomes varied according to PP levels. In terms of urine abnormalities, the impact of hematuria on the eGFR decline rate was amplified by increasing levels of proteinuria. Importantly, even trace proteinuria, typically considered clinically insignificant, was associated with an increased risk of cancer mortality. Finally, regarding age-related changes in body morphology, even minimal annual height loss (<0.15 cm/year) was associated with decreased kidney function. Moreover, the combination of low body mass index (BMI) and high A Body Shape Index (ABSI), implying sarcopenic obesity, was a stronger predictor of all-cause mortality in elderly individuals with CKD compared to their non-CKD counterparts.

17 Recent Advances in Dietary Therapy for CKD Patients : South Korea's Latest Approaches

Hyun Ha Park
Department of Clinical Nutrition, Clinical Dietitian (RD)

Professional Experience
2016.03 ~ 2017.02 Yonsei University Health System (YUHS): Intern Dietitian
2017.08 ~ 2018.04 Yonsei University Health System (YUHS): Research Dietitian
2018.04 ~ Ewha Womans University Medical Center (EUMC): Clinical Dietitian

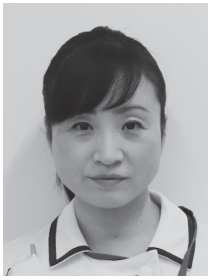
Chronic Kidney Disease (CKD) has emerged as a critical global public health issue, with its prevalence steadily increasing due to aging populations and rising rates of diabetes and hypertension. The growing burden of CKD not only impacts healthcare costs but also significantly affects patients' quality of life. In South Korea, CKD affects a significant portion of the population, posing challenges to the healthcare system. Effective management strategies are essential to slowing disease progression and improving patient outcomes.

Studies indicate that CKD patients often experience reduced energy and protein intake upon initiating dietary management, leading to potential nutritional imbalances. Based on the Korean National Health and Nutrition Examination Survey (KNHANES) from 2011 to 2014, a study evaluated the dietary intake characteristics of CKD patients and compared nutritional intake differences across CKD stages. The results showed that as CKD progressed, the intake of energy, water, protein, fat, carbohydrates, sodium, potassium, calcium, and phosphorus decreased. Additionally, in advanced CKD stages (3a, 3b, 4-5), the reduction in potassium and calcium intake was particularly pronounced. These studies emphasize the need for clinical nutrition therapy to prevent such imbalances and to help patients maintain individualized optimal intake levels.

Clinical dietitians follow established international and national guidelines, including the 2020 KDOQI, 2024 KDIGO, and 2021 ESPEN, as well as Korean clinical guidelines such as the 2022 Chronic Kidney Disease Clinical Practice Guidelines, 2023 Diabetic Kidney Disease Guidelines, and 2024 Pediatric and Adolescent Kidney Disease Nutrition Guidelines, to tailor nutritional interventions and optimize dietary intake for CKD patients. These guidelines serve as crucial standards for clinical nutrition management and reflect the collective efforts of healthcare professionals, including clinical dietitians (RD),
in improving nutritional care.

To ensure balanced nutritional intake, meals are planned by adjusting calorie-based meal and snack distribution, allowing patients to consume appropriate amounts of food at the right times.

18 Nutritional Management in CKD Stages: The Role of Nurses



Nami Takai
Department of Nursing, Nagoya University Hospital

I am a nurse at Nagoya University Hospital in Nagoya City, Aichi Prefecture, and I am a specialist in chronic disease nursing and a certified kidney disease care instructor.
I am involved in the day-to-day care of patients with chronic kidney disease.
I mainly run an outpatient clinic that specializes in preventing the progression of chronic kidney disease in patients with chronic kidney disease. At this clinic, I encourage patients to improve their lifestyles and provide nutritional guidance. I also provide information and support for decision-making for patients with end-stage renal failure who are choosing between renal replacement therapies.

Chronic kidney disease (CKD) is a condition associated with lifestyle-related diseases such as hypertension, diabetes, and dyslipidemia, necessitating lifestyle modifications and improvements. During the pre-dialysis stage of CKD, dietary therapy aimed at preventing disease progression is considered crucial, with sodium and protein restriction being key characteristics. However, in elderly individuals, social interactions tend to decrease with aging, leading to reduced opportunities for going out. This can result in muscle weakness and nutritional imbalances, thereby accelerating frailty. Moreover, in CKD patients, declining kidney function is often accompanied by a reduction in skeletal muscle mass, making them more susceptible to sarcopenia and frailty. Therefore, in preventing frailty among CKD patients, addressing aging, nutritional management, and muscle maintenance are critical issues.

At Nagoya University Hospital, the CKD nursing program provides a multidisciplinary system where nurses and registered dietitians collaborate to offer lifestyle and nutritional guidance to pre-dialysis CKD patients, peritoneal dialysis (PD) patients, and post-kidney transplant patients. One advantage of nurses being involved in nutritional guidance is their ability to gather information on patients' living conditions and use this information to suggest dietary improvements tailored to their daily lives.

Through this presentation, I hope to introduce our hospital's initiatives and engage in an exchange of ideas.

19 My activities as The Certified Kidney Disease Educator in Japan

Atsuko Sakai PhD, RD
Saito Medical Clinic

Bio by Atsuko Sakai
Dr. Atsuko Sakai obtained her Master of Science in Nutrition Science at the University of Tokushima, Japan. She subsequently engaged in feeding service management at Kawasaki Medical School Hospital in Okayama, and nutritional counseling and management for patients with kidney disease, diabetes, and cardiovascular disease at Kawashima Hospital in Tokushima. Following this, she taught nutritional theory and practice at two universities. She earned her Doctor of Philosophy from the University of Tokushima in 2017.
Dr. Sakai currently provides nutritional counseling using coaching at Saito Medical Clinic. She is also a vice president of The Japanese Society of Renal Nutrition and Metabolism (JSRNM) and a member of the Patient Resources Committee in ISRNM. Her research interests include education, diet therapy, and prevention of malnutrition for CKD patients.

In Japan, one in five adults (about 20 million people) and one in four people over 65 years of age are estimated to have an eGFR below 60, indicating a significant increase in the number of elderly chronic kidney disease (CKD) patients. The aging of patients with CKD has necessitated a focus on frailty and sarcopenia to extend healthy life expectancy as well as the prevention of the severity of CKD.

The number of nephrologists in Japan is low relative to the proportion of patients, at 6,000, and their distribution is uneven. Consequently, in 2018, Japan Kidney Association initiated action to train nurses, public health nurses, pharmacists, and registered dietitians as The Certified Kidney Disease Educator. This educator possesses fundamental knowledge in the management of CKD. At present, approximately 2,700 medical staff in Japan have obtained this qualification.

I qualified as this educator in 2018 and work in Awaji Island, which has approximately 120,000 population without a full-time nephrologist. My primary workplace is the clinic, and I am also engaged in a project to prevent diabetic nephropathy from worsening in two cities. My role in the project is to provide in-person and in-home nutritional and dietary counseling and face-to-face lectures to CKD patients, as well as to create educational videos and provide advice on project activities. I always advise patients at high risk for CKD to consult a nephrologist. In cases of CKD, renal function has been observed to improve following modifications or cessation of medications prescribed by a family doctor, following the recommendations of a nephrologist. Therefore, I am promoting the implementation of eGFR stickers on patient's medication registers throughout the island in cooperation with the city hall. Furthermore, I engage in CKD awareness activities in honor of World Kidney Day and in lectures to improve the skills of medical staff.

The Japanese diet has traditionally been plant-based, with staple foods such as rice, and potatoes constituting 60% of daily energy requirements. However, the current diet of elderly CKD patients is far from balanced. This phenomenon is mainly attributable to the dissemination of exaggerated information by the media in recent years. Therefore, for elderly patients, the initial nutritional counseling focuses on "correction to a well-balanced diet" and "salt reduction" regardless of CKD stage. In subsequent guidance sessions, energy, protein, and salt intake are adjusted based on the drug, the degree of edema, and blood data such as eGFR, urea nitrogen/creatinine ratio, and potassium.

It is essential to collaborate with multidisciplinary staff and share information so patients do not adopt the wrong dietary habits.

20 Dietary Therapy and Meal Planning for Dialysis CKD Patients Using Okinawan Food Ingredients: From the Perspective of *"Nuchigusui"*

Name: Yuki Aoyama Place of Birth: Okinawa, Japan Profession: Registered Dietitian

【Education】
- **Kyoto Bunkyo Junior College**, Department of Home Economics, Food and Nutrition Major (Associate Degree), Graduated in 2005
- **Kurashiki Sakuyo University,** Faculty of Food Culture, Department of Nutrition (Bachelor's Degree in Food Science), Graduated in 2007
- **University of the Ryukyus**, Graduate School of Education, Home Economics Education Specialization (Master's Degree in Education), Graduated in 2009

【Professional Experience】
- **Acute Care Hospital** (Post-graduation): Worked as a registered dietitian, providing nutritional management in a large-scale acute care hospital.
- **Cooking Class Assistant:** Studied under Ms. Kayoko Matsumoto, principal of Matsumoto Cooking Academy, to master traditional Okinawan cuisine.
- **Dietary Management in Dialysis Clinics:** Provided nutrition counseling and menu planning across multiple dialysis clinics, focusing on the dietary needs of patients with chronic kidney disease.
- **Current Position:** At Nishihira Clinic, responsible for designing meal plans tailored to dialysis patients, integrating traditional Okinawan ingredients and cooking methods.

【Introduction】 Background and Challenges of Dietary Therapy for Elderly Dialysis Patients.

As a registered dietitian working at a small-scale dialysis clinic in Okinawa Prefecture, I am committed to improving the health and quality of life (QOL) of dialysis chronic kidney disease (CKD) patients through daily meal planning. Among elderly dialysis patients, loss of appetite and malnutrition are common issues, often leading to the progression of frailty and sarcopenia. These conditions result in muscle weakness, reduced physical function, and overall vulnerability, negatively impacting patients' QOL and prognosis. Thus, dietary therapy should not merely aim for numerical targets but serve as a means to support patients' overall well-being. For elderly dialysis patients, unfamiliar menus or ingredients often result in leftovers, creating a dilemma where adequate energy intake cannot be achieved. In Okinawa, the term "Nuchigusui" reflects the belief that food, lifestyle, and mental well-being are integral to health and survival. Many elderly individuals in Okinawa value this philosophy, showing a preference for meals prepared with local Okinawan ingredients and recipes. This presentation highlights the effectiveness of dietary therapy incorporating Okinawan food ingredients, with examples of dialysis-friendly meals provided at our clinic.

【Historical Evolution of Dietary Therapy for Dialysis Patient】

In the early stages of dialysis treatment, limited technology and short treatment times meant that the removal of waste products and electrolytes was inefficient, necessitating strict dietary restrictions. Patients faced significant limitations on protein, water, potassium, and phosphorus intake, which often resulted in deteriorated nutritional status. With advancements in dialysis technology, such as improved waste removal efficiency, dietary restrictions have been relaxed. Protein intake, in particular, has increased, with 0.9–1.2g/kg/day now recommended for hemodialysis (HD) patients. Modern dietary therapy for dialysis patients focuses on maintaining nutritional health while making meals enjoyable.

【Basic Principles of Dietary Therapy: Preventing Frailty and Sarcopenia】

Nutritional management for elderly dialysis patients aims to prevent frailty and muscle loss (sarcopenia) by providing a well-balanced diet. The key points include:

- The required amount is adjusted according to nutritional status and the severity of sarcopenia. For hemodialysis (HD) patients, a protein intake of 0.9–1.2 g/kg/day is recommended. However, in severe cases of sarcopenia, a high-protein diet exceeding the recommended intake may be advised depending on the patient's condition.

- Sodium Restriction: Keep salt intake below 6g per day. Enhance flavor naturally using dashi (broth) and spices instead of salt.
- Phosphorus & Potassium Management: Since high-protein diets increase phosphorus and potassium intake, choose foods carefully and use cooking methods like boiling to reduce potassium levels.
- Energy Intake: Ensure 30–35 kcal/kg/day to prevent energy deficiency. Without enough energy, the body may break down muscle protein for energy, worsening muscle loss.

【Okinawan Cuisine in Meal Planning】

Okinawan cuisine is highly beneficial for nutritional management in elderly dialysis patients. Based on the philosophy of *"Ishoku Dogen"* (food as medicine), our clinic integrates Okinawan ingredients and traditional cooking techniques into meal planning.

- *Mozuku* (Seaweed): *Mozuku* is included in every meal due to its low potassium content, making it suitable for dialysis patients. Rich in soluble dietary fiber, it improves gut health and helps alleviate constipation. Served as a vinegared dish, it reduces sodium intake while stimulating appetite.
- *Tibichi* (Pig's Feet): *Tibichi* is an excellent source of animal protein and collagen, supporting muscle mass maintenance and joint health. It is low in phosphorus and becomes even leaner when boiled, making it ideal for dialysis patients.
- *Jushi* (Okinawan Mixed Rice): Using low-potassium rice, *jushi* incorporates pork for efficient energy intake. Its mild flavor makes it easy to consume even for those with reduced appetite.
- *Tofu Chanpuru* and *Fu Tshiya*: Okinawan tofu, with higher protein and lower water content than regular tofu, is rich in plant-based protein with a low phosphorus absorption rate. Fu (wheat gluten) also has a favorable phosphorus-to-protein ratio, making it highly suitable for dialysis patients. These dishes pair tofu or fu with vegetables, providing vitamins and minerals.
- *Dashi (Broth) Utilization*: The most critical component in enhancing flavor while reducing sodium is dashi. Most of our dishes use thick-cut Okinawan katsuobushi (bonito flakes), which produce a richer broth compared to mainland methods. While the phosphorus content of dashi must be considered, it significantly enhances meal satisfaction.

【Conclusion】

Meal planning that incorporates Okinawan food ingredients significantly contributes to the health maintenance and QOL improvement of elderly dialysis patients. By balancing nutrition and using familiar flavors and ingredients, we aim to prevent and treat frailty and sarcopenia. Moving forward, we will continue to provide personalized nutritional management tailored to each patient's needs while strengthening multidisciplinary collaboration and offering community-based dietary therapy. In our presentation, we will provide concrete examples of dialysis meals served at our clinic, based on detailed nutritional calculations.