

Shu Wakino

Department of Nephrology, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan

1997 Medical doctor in Internal Medicine, mentor; Prof. Takao Saruta
1999 Research fellow in University California at Los Angeles, mentor; Prof. Willa A. Hsueh
2004 Resident in Department of Medicine, Keio University
2010 Assistant Professor Department of Medicine, Keio University
2015 Associate Professor Department of Medicine, Keio University
2020 Professor in Department of Nephrology, Tokushima University Graduate School

CKD (chronic kidney disease) is increasingly recognized as a global health problem and more than a million people is suffering from this disease. CKD leads to the cardiovascular complications and end stage kidney disease which become the social burden. One of the therapeutic strategies against CKD is diet therapy which consists of protein and salt restriction for aiming at reducing renal tissue damages and uremic symptoms. On the other and, some type of dietary patterns is recommended for CKD, including Mediterranean diet or Plant-base diet. Among them, whole grains have gained attention as healthy diet for early prevention of various diseases. Whole grains are defined as grain kernels with high content of dietary fiber, phytochemicals, minerals, antioxidants, various vitamins, and other beneficial nutrients. Lower intake of whole grains has been linked to an increased risk of CKD and recent population data has demonstrated that intake of whole grains in relation to refined grains was associated with lower risk of cardiovascular disease, kidney failure, and mortality in CKD patients. Especially, CKD patients are inclined to suffer from constipation or defection problems partly because of the deterioration of intestinal microbiota composition, which could be ameliorated by fiberrich whole grain intake. It was reported the constipation condition is associated with CKD prevalence and progression in a large cohort study, therefore, whole grain has the potency to prevent or block the initiation and progression of CKD. In Asia, rice is a major staple food and it is one of the most consumed grains in the world. The rice production process includes the separation of rough rice into husk and brown rice through the process of threshing. The brown rice is subjected to post-production processes such as milling, where the bran is removed and polished/ white rice is produced. In this sense, brown rice is an example of whole grain food, which is highly nutritious due to the presence of various bioactive compounds (flavonoids, phenolics, vitamins, phytosterols, oils, etc.) associated with the rice bran layer of brown rice. Although in several trials, brown rice has been shown to have anti-diabetic effects there has been no reports showing the effects on CKD. Considering the favorable effects by whole grains on CKD prevalence and anti-inflammatory or anti-oxidant properties by brown rice, brown rice consumption could be expected to inhibit CKD progression. Under these assumption, recent technological advances in the rice processing have realized the development of new low-protein brown rice (LPBR) by a two-step fermentation. In these backgrounds, we investigated the effect of low-protein brown rice (LPFG) on CKD progression. The clinical trial was designed as an open-label intervention trial - one-arm. 15 servings of LPFG retort rice were provided per week and continued for 3 months. The subjects had stage 3 or higher CKD. The study subjects were CKD patients with stage 3 or higher CKD, and the primary outcomes were defecation status and renal function. Defecation was assessed using the Cleveland Clinic Constipation Scoring System. Cytokine and uremic toxin levels were also investigated. Low-protein brown rice reduced the constipation score from 3 to 1, and most of the uncomfortable symptoms about defection were recovered with the intervention. Protein intake remained the same, but salt intake decreased. Serum creatinine levels decreased and eGFR increased, but urinary protein levels remained unchanged. Serum CRP concentrations decreased, enteric-derived uremic toxins showed a decrease in p-cresyl sulfate. Cytokine levels decreased in blood levels of IL-6, while blood levels of TNFa did not change. Nutritional parameters such as serum total protein, albumin, and BMI levels did not change, and liver function was not affected. In conclusion, our results suggest that low-protein brown rice may improve renal function by improving defecation and reducing systemic inflammatory conditions without altering the nutritional status of CKD patients.

-19-

Current status of diet therapy for CKD in Thailand



Kriang Tungsanga, MD

Professor Emeritus Kriang Tungsanga graduated from Faculty of Medicine, Chulalongkorn University, Bangkok, in 1973, and received a postgraduate training as a research fellow at Johns Hopkins Hospital, Baltimore. He was appointed as a faculty staff at Department of medicine, Faculty of Medicine, Chulalongkorn University, Bangkok. He gradually ascended to the position of Professor of Medicine. His area of interest includes kidney stone disease, early detection and prevention to delay disease progression in chronic kidney disease with particular emphasis on implementation of integrated care at a community health care level. His previous academic positions were Past-President of Nephrology Society of Thailand, of the Royal College of Physicians of Thailand, and Chair of the Committee for National List of Essential Medicine, the Royal Thai Government (2016-2021). He also no serves as the Chair of Ethical Committee for Research in Man, Ministry of Public Health. He has published 230 papers in peer-reviewed medical journals.

After launching the "PD-First" Policy by the Thai Government in 2008, there has been rapid growing in the number of patients with end-stage kidney disease who received renal replacement therapy (RRT). Currently, the prevalence of RRT of Thailand ranks on the 5th by USRDS international comparison in 2020. With limited resources in all aspects, it is mandatory and challenging to have a comprehensive approach at a national scale to create public awareness and effective early detection & early prevention program on CKD.

The "Thai Lowsalt Network" and "Fatless Belly Thais" are 2 important public networks to create awareness among the public and the government sectors about the importance of healthy lifestyle: less salt, less sugar, more exercise. Randomized controlled clinical trial was conducted a decade ago in the rural area and it could demonstrate clearly that rendering an integrated care approach by utilizing available public health resources at the primary-care level of the country was effective in delaying progression of CKD in patients with stages 3 and 4. Further study with costeffectiveness analysis confirmed that such an integrated care program is cost-saving over patients' life span.

This year, we will conduct a prospective field study to see the effectiveness of empowering community nurses at the sub-district health office for caring patients with CKD at earlier stages (stage 2 and 3A). This also include improving health literacy on proper food intake in the real world practice at the rural community level for combating progression of CKD.

Nutritional Management in CKD patients -To whom it may concern-



Yoshihiko Kanno MD PhD

Department of Nephrology, Tokyo Medical University

| Education | | | |
|-----------|---------------------------|---|--|
| | 1985 | Graduated from Keio High School | |
| | 1991 | M.D. at Keio University, School of Medicine | |
| | 1995 | Ph.D.(Dr. of Medical Science) Keio University Graduate Schools | |
| | 2021 | MSDM (Master of System Design and Management) Keio University Graduate Schools | |
| Residency | | | |
| | 1991-1995 | Resident in Internal Medicine at Keio University Hospital | |
| | Fellowship and Profession | | |
| | 1995-1996 | Fellow in Nephrology at Keio University Hospital | |
| | 1996-1997 | Postdoctoral research fellow in George Washington University Medical Center (Washington DC) | |
| | 1997-1998 | Postdoctoral research fellow in NIDDK, National Institute of Health (Bethesda MD) | |
| | 1999- | Instructor, Department of Nephrology, Saitama Medical School | |
| | 2003-2010 | Assistant Professor, Department of Nephrology, Saitama Medical School | |
| | 2010-2012 | Associate Professor, Dialysis center, School of Medicine, Keio University | |
| | 2013- | Present | |
| | | | |

According to the concept of CKD became widespread, so has the image of patients in the nephrology outpatient department, and as a result, the approach to nutritional management to them has also changed. The restriction of protein and salt intake, and the approach to diabetes, which are generally discussed, have of course changed, but the most important thing is that individualization and regular clinical review are required. In other words, aging has led to an increase in comorbidities, and the activity of hypertension and diabetes varies from person to person, and many excellent drugs have been developed, so it is no longer possible to respond with a uniform approach. The traditional concept of XX disease = XX diet must be positioned as one approach to individual responses, and when considering the balance between the burden on patients and their families and the expected effects, there may even be cases where the weight of nutritional management in the overall treatment should be reduced. In that sense, the common sense that the purpose and approach of nutritional management change significantly between the conservative and dialysis stages, that is, during the initial stage, does not necessarily apply, and there are cases where a continuous approach should be taken. What has not changed is that the ratio of dependence on patients and families is very high compared to other treatments, and non-technical skills are important to ensure the intervention of medical professionals.

10

Establishment of evidence for the usefulness of nutrition education for CKD patients attending their primary care physicians, and social implementation of the systems.



Toshiyuki Imasawa

Department of Nephrology, National Hospital Organization Chiba-Higashi National Hospital

Current Position: Director of Kidney Center, National Hospital Organization Chiba-higashi National Hospital, Japan

 Education:

 1986-1992: Nagoya University, School of Medicine, (M.D., 1992)

 1995-1999: Graduated School, Jikei University School of Medicine, (Ph.D. 1998)

 Business experience:

 1999-2000: Division of Nephrology, Tokyo Saiseikai Central Hospital

 2000-2001: Senior Assistant Resident, Division of Nephrology and Hypertension, Jikei University School of Medicine

 2003-2005: Assistanat Professor, 4th Internal Medicine, Saitama Medical Center, Saitama Medical School

 2006 Division of Nephrology, National Hospital Organization Chiba-higashi National Hospital

The importance of nutrition education has been recommended for patients with chronic kidney disease (CKD), because it can help prevent renal function decline and cardiovascular events. In Japan, the nutrition education for CKD patients has mainly been provided in specialized hospitals where nephrologists are present, and this situation continues at present. On the other hand, the majority of CKD patients attend their primary care physicians (PCPs) and do not receive nutrition education. Is this situation acceptable? Wouldn't the prognosis of CKD be improved if there was a system to provide nutrition education at the PCP? To answer this question, we have performed a cluster-randomized controlled trial for the FROM-J study with two arms-group A without the program and group B with the practice facilitation program, including continuous nutrition education by dieticians, by multidisciplinary care for PCPs (PLoS One. 2016;11:e0151422). The trial included a total of 557 PCPs and 2417 CKD patients who were attending PCPs. The occurrence of the primary composite endpoint (cardiovascular disease (CVD), initiating renal replacement therapy, and a 50% decrease in the eGFR) tended to be lower in group B at 10 years after the study started (group A: 27.1% vs. group B: 22.1%, p=0.051) (Nephrol Dial Transplant. 2023;38:158-166). CVD incidence was significantly lower in group B with the practice facilitation program (group A: 10.5% vs. group B: 6.4%, p=0.001). In addition, CKD patients with stage G3a during enrollment had a significantly reduced rate of eGFR decline in group B (group A: 2.4±3.9 mL/ min/1.73 m²/year vs. group B: 1.7±3.0 mL/min/1.73 m²/year, p=0.02). Health economic benefits were also proven (J Ren Nutr. 2021;31(5):484-493). The evidence which shows the usefulness of nutrition education for CKD patients at PCPs was established. Therefore, the next goal is to implement these results in society. Last year, a system was established in Chiba Prefecture to dispatch dietitians to medical institutions of PCPs to provide nutrition education and the education has actually started. Although this is only the beginning, I will also introduce the initiative.



Shinji Machida

Department of Nephrology and Hypertension, St. Marianna University School of Medicine, Yokohama City Seibu Hospital

Shinji Machida

2015 Department of Nephrology and Hypertension, St. Marianna University School of Medicine
2020 Department of Nephrology and Hypertension, St. Marianna University School of Medicine, Yokohama City Seibu Hospital
2023 Chairman of the NST, Yokohama City Seibu Hospital

Looking back at the 10-year transition of the Japanese CKD Treatment Guidelines from 2013 to 2023, it can be said that CKD nutrition therapy has entered the era of "personalization." Discussions on the "pros and cons of protein restriction," "mitigation of protein restriction depending on the presence or absence of sarcopenia," or even "outcomes by intake 'source' rather than protein intake" and "interventions based on dietary patterns" are being discussed as factors of personalization, but I believe these discussions are missing the forest for the trees. The term "trees" here does not mean "trivial stories," but rather "meaningless unless the roots are firm." If we talk about "roots" of nutritional therapy, I believe it is "whether community integrated Nutritional Support Team (NST) can be realized." In other words, it is important to conduct screening at clinics before hospitalization at an acute phase hospital, and to ensure appropriate monitoring after discharge to maintain the benefits of in-hospital rehabilitation and nutritional interventions and to optimize the patient's nutritional status. However, the reality is that such a system has yet to be established in many regions. In addition, in the management of CKD, it is presumed that establishing a consistent system is challenging because the primary care provider often changes as the patient's condition progresses, moving from (1) a general clinic to (2) the nephrology department of a larger hospital, and finally to (3) a dialysis clinic as the glomerular filtration rate (GFR) declines. In order to overcome this issue, our hospital changed the name of the Dialysis Therapy Department to the Kidney Care & Support Center (KiCS) from April 2024. We have started creating a system to seamlessly monitor nutritional status by having KiCS become a regional hub that cooperates interactively with the above (1), (2), and (3), so we will report on its activities.

-23 -

13 The importance of multidisciplinary team care in dietary education for CKD patients



Shinya Kaname, MD, PhD

Department of Internal Medicine and Dialysis Center, Kichijoji Asahi Hospital / Department of Nephrology and Rheumatology, Kyorin University School of Medicine

Education and Professional Experience April 2024: Vice Director, Kichijoji Asahi Hospital; Visiting Professor, Kyorin University School of Medicine

To prevent the progression of CKD and improve patient prognosis, it is essential to achieve various treatment goals and promote lifestyle modifications. Multidisciplinary team care (MDC) has been proposed as an effective approach, although the benefits of MDC remain inconsistent and various MDC models exist. Therefore, we conducted a multicenter, retrospective study to evaluate the effectiveness of MDC by comparing changes in renal function before and after MDC interventions. The results showed that MDC approach suppresses the progression of CKD from G3b to G5 in both diabetic and non-diabetic patients. Dietitians were the most common professionals involved in MDC, accounting for 90% of the participating facilities. Based on the accumulating evidence supporting the effectiveness of MDC, appropriate guidance provided by a dialysis prevention team is now eligible for reimbursement under the Dialysis Prevention Guidance Management Fee even for patients with CKD not caused by diabetes. Recognizing the importance of developing human resources to provide CKD care, we have recently established a "Certified Kidney Disease Educator (CKDE)" system in Japan to train healthcare professionals such as nurses, dietitians, and pharmacists who have acquired standardized, cross-disciplinary knowledge and skills related to CKD care guidance. To date, more than 2,500 people have been certified, 20% of whom are dietitians. In this presentation, I will discuss the significance of MDC, including dietary education, based on clinical experience.

Combating Protein-Energy Wasting: The Role of Extended-Hours Hemodialysis with a Liberalized Diet



Takahiro Imaizumi, MD, Ph.D.

Department of Advanced Medicine, Nagoya University Hospital

PROFESSIONAL EXPERIENCE
 Specially appointed assistant professor

 April 2019 – Present, Department of Advanced Medicine, Nagoya University Hospital, Nagoya, Japan

 Postdoctoral fellow

 2017 – 2019: Department of Biostatistics Epidemiology and Informatics, Center for Clinical Epidemiology and Biostatistics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, USA

Background

Protein-energy wasting (PEW), a unique weight loss linked to nutritional and metabolic abnormalities, is common in patients undergoing hemodialysis (HD) and associated with adverse outcomes. This study investigated whether extended-hours HD combined with a liberalized diet could overcome PEW and improve survival.

Methods

The body mass index (BMI) and survival outcomes in patients undergoing extended-hours HD were evaluated for up to 8 years using data from the LIBeralized diet Extended-houRs hemodialysis Therapy (LIBERTY) cohort. Extended-hours HD was defined as weekly dialysis length \geq 18 h. Furthermore, we also investigated the association between ultrafiltration rate and mortality.

Results

The LIBERTY cohort contained 614 patients including 402 patients who newly initiated extended-hours HD. The mean age was 62 years and 65% were male. The median fluid removal was 3.0 [IQR, 2.4–3.7] kg/session, dialysis session length 21 [18–24] hours/week, and weight-scaled and unscaled UFR were 7.4 [6.0–9.1] mL/h/kg, and 434 [334–531] mL/h, respectively. Over a median follow-up of 6.2 [3.5–10.1] years, 225 patients died with a 5-year overall survival of >80%. Higher UFR in those with higher post-dialysis weight was associated with increased mortality risk, while lower UFR in those with lower post-dialysis weight was associated with poorer outcomes. In 402 incident patients, we described the longitudinal dialysis-related parameters. An increase in the length and frequency of HD sessions was observed over time, with approximately 70% and 20% of patients undergoing extended-hours HD for >21 h/week and >3 sessions/ week at 5 years, respectively. The BMI and percentage creatinine generation rate were maintained over time, with no substantial increase in the phosphorus and potassium levels. The estimated BMI initially increased, and thereafter plateaued over time in patients with a baseline BMI <25 kg/m2 after several years from baseline.

Conclusions

Extended-hours HD with a liberalized diet may help achieve favorable survival outcomes and maintain nutritional status. Reduced UFR may be associated with higher mortality, especially in underweight patients. Thus, it is a promising treatment option for managing PEW in patients undergoing HD.

14

Healthy and Diverse Diet for CKD and Dialysis Patients



Kunitoshi Iseki, M.D., PhD

Okinawa Dialysis and Transplant Association, Nakamura Clinic

2018 ~ Current: Clinical Research Support Center, Nakamura Clinic 2017 ~ 2019: KDIGO Executive Committee Member 1974: Graduated Kyushu University, Fukuoka, Japan

President of the International Meeting

1. International Congress on uremia Research and Toxicity 2014, Mar 13-15 (8th ICURT)

2.International Congress on Hemodialysis 2014, Apr 25-27 (7th ISHD)

3. International Congress on Renal Nutrition and Metabolism 2016, Apr 19-23 (18 $^{\rm th}$ ICRNM)

4. International Workshop on Dietary Therapy for Chronic Kidney Disease 2024, March 16-17.

Dialysis therapy has been saving lives in patients with end-stage renal disease. However, the trend of mortality rate compared to the general population is not known. We analyzed a fifty-year (1971-2020) longitudinal demographics of a community-based dialysis registry in Okinawa, Japan. A total of 15,703 patients were registered and determined the outcomes. The leading cause of requiring dialysis has changed from chronic glomerulonephritis to diabetes mellitus. The mean age at the start of dialysis has increased from 38.7 years in 1971-1980 to 67.2 years in 2011-2020. The main cause of death was changed from cardiac to infection. Compared to the general population in Okinawa, the standardized mortality ratio (SMR) from 2000 to 2020 has decreased gradually from 4.5 to 2.8 in men and 6.7 to 3.7 in women, respectively. The prognosis of dialysis patients has been improving, however, SMR is still high.

Improving survival of dialysis patients may be explained by improved management of dialysis complications. Medications for CKD-MBD were introduced such as vitamin D receptor activators (VDRAs), calcium phosphate binders, and calcimimetics. Hemodiafiltration (HDF) is commonly used after approval for reimbursement in 2012. The effect of high-dose HDF was proved by RCT.

Sleep apnea syndrome (SAS) is common in pre-dialysis CKD and dialysis patients. We reported that the degree of sleepiness (JESS score) was related to the survival of dialysis patients in the J-DOPPS cohort. Recently, we published the life-saving benefit of continuous positive airway pressure (CPAP) for SAS patients in the general population in Okinawa. Also, the beneficial effect of CPAP on survival was shown in the dialysis population. Such benefit may be explained as the sleep disturbance is closely related with nutritional elements.

Also, dialysis vintage is related to nutritional status decline. Japanese Society for Dialysis Therapy data showed that dialysis vintage has a different impact on cause-specific mortality, with a higher risk for infection-related mortality than CVD mortality. For elderly dialysis patients, dietary management is a key factor as "food is medicine". It is important to avoid "unhealthy foods". In addition to "what" and "how much", it is important to "when". "Time-restricted eating, TRE" is a preventative and therapeutic intervention. We need more data on "chrono-nutrition".