Impact Objectives

- Build a care index to prevent cognitive decline in elderly patients
- Develop delicious meals for patients receiving radiation therapy

Nursing care personalised

*Research by **Professor Norimasa Ogama** is guided by the key tenet of dignity of life for elderly oral cancer patients, where he is innovating care for patients receiving radiation therapy*

What inspired you to become involved in cancer nursing research?

While working at Aichi Cancer Center, I witnessed first-hand how individuals were losing their lives after treatment. In efforts to overcome this problem I entered the Graduate School of Medicine, Osaka University. At that time, while keeping in mind the tenet of nursing research that supports and encourages cancer patients to move forward even when they are hurting, I kept repeating trial and error research both morning and night. At the same time, the reports of several excellent research paper awards and encouragement awards gave me courage to continue. It established and accelerated the vector of my research that supports people to live their own lives while undergoing treatment.

Can you tell us more about your central philosophy around nursing?

I believe that dignity of life lies in allowing patients and their families to independently survive in society as ordinary citizens and I am using my research to help achieve this. The guidelines from the founder of the Faculty of Nursing at Soka University, Daisaku Ikeda, state that the students and faculty should work together to become 'world class citizens who practise value creation' through nursing. In line with this, we are drawing out the zest for life in patients and their families and truly touching their hearts and empathising with the suffering of the patients and their families. We always consider the support we can provide and the wisdom we can gain from patients to progress our research.

What are you currently working on?

At present, my mission is to take on the challenge of research that does the impossible from the patient's perspective, by developing delicious meals for patients receiving radiation therapy despite the adverse effects. Currently, we are working to complete the development of care to prevent cognitive decline in elderly patients, considering the characteristics of radiation therapy and surgical therapy. We are still going through trial and error with this. If we can help patients with various illnesses to 'eat deliciously', we will be able to make groundbreaking suggestions on what menus patients and families should prepare at home to prevent cognitive decline. If medical professionals can assess the common factors and values related to eating that impact cognitive decline among elderly patients with various diseases, it will lead to the development of tailor-made meals to reduce the incidence of developing dementia after hospitalisation for treatment. Ultimately, this will play a vital role in improving the quality of medical care.

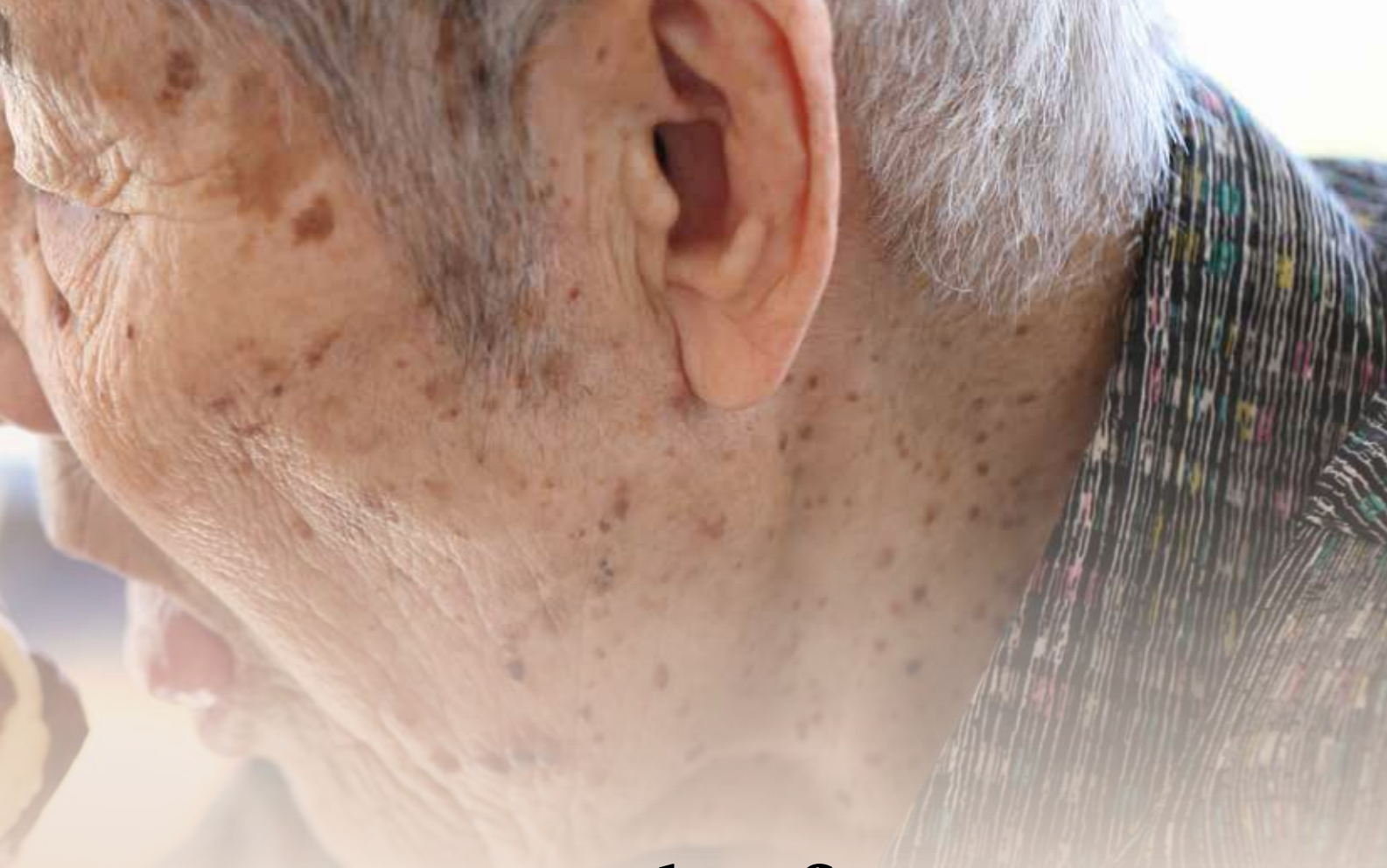
How will you fill knowledge gaps?

There are several major gaps in knowledge that I would like to fill in with my research. Firstly, developing indicators that will play a role in improving the overall quality of cancer care from the perspective of tailored preventive care for cancer patients while the medical professionals assess the objective numerical values developed through research. Second, developing a care model for cancer patients who receive the treatment while maintaining the same level of care provided by medical professionals. Third, and above all, creating a system for medical cooperation and team building to give patients a sense of satisfaction with their needs.

What would you like to focus on next?

In the future, we will develop a conversation care model to prevent cognitive decline based on the causal relationship between communication, accuracy, fluency, cognitive function, diurnal fluctuation and individual characteristics of oral cancer patients who have undergone both radiotherapy and surgery.

Meals that prevent cognitive decline while reawakening deliciousness



Innovative index for improving quality of life

*A research team from the **Faculty of Nursing** at **Soka University** are developing an index to predict cognitive decline in elderly oral cancer patients to enable earlier and better tailored treatment*

A host of symptoms can be observed in oral cancer patients who have undergone treatment, including dry mouth and changes in taste. A researcher based at Soka University is interested in how looking closely at these symptoms could predict the risk of decline in cognitive function in elderly oral cancer patients with the use of different sensory food experiences. As such, Professor Norimasa Ogama, who is based in the University's Faculty of Nursing, is developing an index to predict this risk.

Inspiration for this research struck when Ogama previously worked at the Department of Head and Neck Surgery, Aichi Cancer Center Hospital. During this time, he encountered a range of problems among patients, including reduced eating and swallowing function and changes in body image. He also saw patients suffer from ongoing issues with eating and speaking. The adverse effects of radiation and chemotherapy left many patients with changes in taste, oral mucositis and a dry mouth.

This got him thinking about how to improve quality of life for these patients, including the ability to enjoy food. 'I began to muse that by developing an oral rehabilitation programme which takes into account post-operative life evaluation and its influencing factors, we can expect to significantly increase patients' life satisfaction,' Ogama highlights.

A NOVEL RISK INDEX

Indeed, in one project, Ogama and the team are developing a risk index for cognitive decline predicted by the adverse events of radiation and the diet of elderly patients with oral cancer. Through this work, Ogama is seeking to accurately determine the risk of cognitive decline early based on changes to eating preferences and in the taste of food, as well as worsening of oral mucositis and symptoms of dry mouth due to radiation therapy through 'eating deliciously', based on personal preferences and characteristics. 'Preventing cognitive decline while reawakening 'deliciousness' means maintaining memory, attention and concentration, as well as treatment safety, participation in treatment policy decisions, and social interaction while satisfying the patient's basic needs,' Ogama outlines. 'Thus, we play a vital role in care aiming to achieve the recuperative life that the patients' desire.'

The researcher's initial survey was disrupted by the COVID-19 pandemic, as during this time, he did not have the opportunity to ask the patients to cooperate with the research. 'Since my research requires direct assessment of the changes in the patient's taste, collection of saliva to measure its viscosity and observation of the symptoms of oral mucositis, my investigation requires meeting with patients directly,' points out Ogama. 'As a solution to this problem, I asked the nurses from 10 research facilities to cooperate with the survey and gather the data.'

A key part of Ogama's work relates to the causal relationship between the sensory ▶

evaluation of texture, flavour, odour, food form, temperature, preference and change in intake, which is an area that remains unclear. He is also working to shed light on how the personal characteristics of the patient, like gender and history of drinking and smoking, relate to cognitive function. As such, the index the researchers are developing incorporates food sensory elements, individual characteristics and changes in taste that have occurred in life. 'Using the index it is possible to analyse the causal relationship between the symptoms based on the side effects of radiation and cognitive function, as well as analyse the risk of cognitive decline by measuring the tailored information on diet and personal characteristics before, during and after treatment,' describes Ogama. So far, he has been able to ascertain that elderly patients with severe symptoms of taste change and oral mucositis in the morning due to diurnal fluctuations have a higher risk of cognitive decline. 'We noted a tendency for female patients over 70 years of age, whose pre-treatment preferences changes and intake decreases after 30 Gy of radiation to experience disorientation in time and place and decline in short-term memory,' he observes.

> *Using the index it is possible to analyse the causal relationship between the symptoms based on the side effects of radiation and cognitive function*

TREADING A FINE LINE

Despite the importance of his work, Ogama encounters hurdles associated with the relative rarity of oral cancer. 'Oral cancer patients account for approximately one per cent of all cancers in Japan; however, oral cancer, which is mainly caused by smoking and drinking alcohol, occurs mostly in the elderly and is on the rise,' he explains. As such, the conditions for study participant eligibility cannot be too narrow as this would decrease the participant pool further. At the same time, the conditions cannot be too vague as this would have a negative impact on the credibility of the research; therefore Ogama and the team needed to tread a fine line. 'The survey targets the patients aged 65 years old or older who do not have any history of diseases that affect their cognitive function and are receiving radiation therapy at Japanese cancer treatment partner hospitals,' Ogama outlines. 'In addition, we tried to cover the widest possible range of information, including age, gender, presence or absence of dentures, history of smoking and drinking and educational attainment; to do this we have asked the nurses from each facility to conduct the survey as co-researchers and to secure the target participants,' he says. Ogama's work involves the participation of a clinical nurse specialist, nurse practitioner, physician or registered dietitian as a co-researcher to discuss preliminary results and contribute to the main project, ensuring it runs smoothly.

DISEASE-SPECIFIC RISK INDICATORS

Future plans for Ogama and the team include developing a dietary model that uses factors such as the sensory evaluation of food characteristics, intake amount and nutritional status as a causal model, targeting elderly patients with oral cancer who receive radiation therapy while having catheters for parenteral nutrition and tube feeding. The researchers also have plans to further personalise treatment. 'We will examine these conversation care models and meal models based on the pronunciation and food culture of countries around the world, and we will promote research to prevent cognitive decline in elderly people undergoing cancer treatment by developing models tailored to each country's background,' he points out. Ogama is eager to collaborate with researchers and clinicians from across the globe to further propel his research forward.

Ultimately, by detecting the risk of cognitive decline early on, patients can be treated safely and their memory and concentration preserved. It can also help with the delivery of care that is accurately matched to a patient's personal needs and maximise the patient's ability to maintain quality of life. If Ogama can accurately determine the risk of cognitive decline early through oral indicators, he believes that this may be applicable to other diseases and help in the development of disease-specific risk indicators.

Project Insights

FUNDING

This work was supported by JSPS KAKENHI Grant Number JP21K10754

COLLABORATORS

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BIO

Professor Norimasa Ogama currently works in cancer nursing research at the Faculty of Nursing, Soka University. He completed his Doctor of Nursing Science at the Division of Health Sciences, Graduate School of Medicine, Osaka University. He has previously worked as a resident nurse at the Aichi Prefectural Cancer Center and as an Associate Professor at the Graduate School of Nursing, Dokkyo Medical University.

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