

## **Simulation Model of Diabetes and Diabetic Nephropathy-induced Dialysis in Japan through 2022: Evaluation of Possible Strategies**

Takehiro Sugiyama<sup>1,2</sup>, Sayuri Goryoda<sup>3</sup>, Kaori Inoue<sup>1</sup>, Noriko Sugiyama-Ihana<sup>1</sup>, Nobuo Nishi<sup>3</sup>

1. National Center for Global Health and Medicine, Tokyo, Japan
2. The University of Tokyo, Tokyo, Japan
3. National Institute of Health and Nutrition, Tokyo, Japan

### **ABSTRACT**

We developed an aging chain simulation model about diabetes management especially focusing on avoiding dialysis initiation in Japan, and we used the model to predict the numbers of people with diabetes and people on dialysis due to diabetic nephropathy up to 2022 based on the population data between 2000 and 2012. Our model suggested that the diabetes prevention intervention would have little impact on the number of dialysis initiation at least in the perspective of less than 10 years after the initiation of effective interventions. Interventions aiming for avoiding dialysis initiation such as glycemic and blood pressure control for patients with diabetes will have a larger and faster impact on the number of dialysis initiation at least within the scope of our prediction. The model implied that it would take more than 10 years for an effective diabetes prevention intervention to decrease the number of dialysis patients due to diabetic nephropathy via the decrease in diabetes patients. Policy makers will need to have a long perspective when they consider future interventions with regard to management of diabetes and its complication.