Smart Healthcare for Cardiovascular Disease

Seung Woo Park, MD
Department of Medicine
Samsung Medical Center Sungkyunkwan University, Seoul, Korea

The rapid development of Information and Communication Technology (ICT) enables us to diagnose and monitor diseases anytime and anywhere at low costs. It becomes more important in modern aging society because the aged people spend much more money for healthcare. According to the data of Korean Health Insurance Review & Assessment service (HIRA), the health cost per person $\geq$ 60 years became 3.5 times of that of younger people in 2009. Also, their physical and mental weakness limits them to visit hospitals even if they have severe diseases. As such, inexpensive and ubiquitous diagnosis and monitoring tools become important. In addition, ICT makes big data storage and analysis much easier than before. The analysis of big data would be expected to reveal the new important findings in medicine. In the field of cardiovascular disease, many new mobile devices to monitor the ECG or other biological signals are introduced as wearable devices such as bands, patches, bracelets and etc. It would be expected to provide early diagnosis and monitoring of the disease. For example, cryptogenic strokes associated with asymptomatic atrial fibrillation in old people may be prevented if the atrial fibrillation is diagnosed earlier. Painless myocardial ischemia, which is common in diabetic patients, could be diagnosed before myocardial infarction develops. Some devices can afford continuous monitoring. Constant monitoring of biological signals from those devices generate huge amounts of data and their analysis would be important. It is not established completely, but it would be set up with the advancement of ICT. In conclusion, those two values of ICT, the lowering health cost with wearable devices and the big data storage and analysis may cause the paradigm shift in medicine sooner or later.