

Coronary Intervention

Supporting state-of-the-art medical care
The enthusiasm of doctors
and new-generation
imaging technology

SCORE PRO Advance



Contents

Part one “Internists” compete with a high degree of professionalism “considering what is necessary”

Chikamori-kai Group, Chikamori Hospital Department of Cardiovascular Medicine

Chief Director	Dr. Kazuya Kawai	
Director	Dr. Shuichi Seki	
Chairperson	Dr. Satoshi Yamamoto	3

Part two Creating an environment for providing better medical care

Tokorozawa Heart Center

Hospital Director	Dr. Masami Sakurada	9
-------------------	---------------------	---

Part three Aims of internists who compete with a high degree of professionalism and overall ability

Dojinkai social medical corporation, Mimihara General Hospital Department of cardiovascular medicine

Director	Dr. Shozo Ishihara	13
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Supporting
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Part one

**“Internists” compete with
a high degree of professionalism
“considering what is necessary”**



Chikamori-kai Group, Chikamori Hospital

1-1-16 Okawasuji, Kochi 780-8522, Japan

TEL 088-822-5231 (main)

FAX 088-872-305

Chikamori Hospital in Kochi Prefecture is a pioneer in team medical care, and is getting attention for its practice of elite team medical care in many professions. Chikamori Hospital was initially a surgical hospital. The Department of Cardiovascular Medicine was additionally established to meet community needs, and the hospital is now a certified training facility of the Japanese Circulation Society, the Japanese Society of Internal Medicine and CVIT with various certified physicians and specialists. Though it is a facility to provide state-of-the-art medical care, the field of the Department of Cardiovascular Medicine often extends to the category of general internal medicine. Even so, the doctors in the Department of Cardiovascular Medicine say without hesitation, “Yes, we are internists.” The original point of these words is their enthusiasm for medical care.



**We are internists
before we are
cardiovascular internists.**

Chief Director
Department of Cardiovascular Medicine
Dr. Kazuya Kawai

We have to be doctors who can provide standard treatment for Japan and the world with as much expertise as possible. This supports the treatment policy of Chikamori Hospital that “appropriate treatments should always be available, and the treatments we provide should be at a global standard.” And from the words “we are cardiovascular internists, but first of all we are internists,” we can see Dr. Kawai’s stance on

medical care. General PCI is no longer a special procedure, and it is not enough to be good at only PCI. Dr. Kawai considers that he should develop younger doctors who can also perform ablation and transcatheter aortic valve implantation (TAVI) in order to meet various needs required for the Department of Cardiovascular Medicine. In a good way, a non-interference policy to entrust younger doctors while performing risk management has been adopted. Therefore, the younger doctors here are highly-motivated and there are many such doctors. It is an optimal environment to train them. It is also a characteristic that there are no academic cliques at all.



A heart team with a lot of achievements

Initially, there were only 8 members of staff in the Department of Internal Medicine. Over the last 24 years this has grown to a total of 40 staff members in the Department of Internal Medicine, with 18 in the Department of Cardiovascular Medicine. In the Department of Cardiovascular Medicine, PCI is performed for patients with ischemic heart disease, such as angina and myocardial infarction, 24 hours a day. Recently, safe and speedy treatment is given every day using many new devices including various stents and rotablaters. Pacemaker implantation for bradyarrhythmia has been performed in more than 1,200 patients in total, and the number of patients with implantable cardioverter defibrillator (ICD), high-frequency catheter ablation treatment and cardiac resynchronization therapy, which were started in 2007, has also been increasing steadily. In 2014, percutaneous transluminal aortic valvuloplasty (PTAV) was started with TAVI in mind, with good results. For the 24 years since the start of PCI in the Department of Cardiovascular Medicine, the doctors have had more than 9,000 cases, and the hospital has become a leading facility boasting a large number of cases in Japan. In 2000, the Department of Cardiovascular Surgery was additionally established, and the hospital is dealing with all cardiovascular diseases as a

heart center. Patients in the Department of Cardiovascular Surgery are always attended by a cardiovascular internist, CCU and the wards are shared, and the two departments not only have an open atmosphere but also are like one department, Dr. Kawai says smiling with a pleased look.

Moving toward total vascular care

In recent years, peripheral angioplasty, stent placement and percutaneous endovascular aneurysm repair of aortic aneurysm are performed in a positive manner in cooperation with the Department of Cardiovascular Surgery and the Department of Radiology without being limited to the cardiac area. In Chikamori Hospital, arteriosclerosis is considered to be a generalized vascular disease, and the focus is not only on treating it but also on how to reduce it. "We are pursuing medical care to provide what is really needed and we are not limited to what we can do," says Dr. Kawai.

Support software that allows procedures to be safe and high quality

In Chikamori Hospital, three Trinias angiography systems from Shimadzu Corporation have been installed. One is the 8-inch Bi Plane Flat Panel Detector (FPD) system for coro-



Fig.1 Angiographic image of the left coronary artery by SCORE PRO Advance

A good image with low noise and high contrast can be obtained even on the spider view

nary artery procedures while the other two are 12-inch FPD Single Plane System and 12-inch FPD Bi Plane System for EVT, ablation, abdominal and head interventions.

Dr. Kawai gives high praise to the real-time image-processing unit SCORE PRO Advance (Fig.1) on Trinius, saying that it is an even better system than he expected. The images are precise and there are few afterimages on the fluoroscopic images. Since there are no afterimages during low pulse-rate operation as well, wiring becomes much easier, which is a potent weapon on site. He says that SCORE StentView (Fig.2) is also very easy to use. He adds that he cannot do without this PCI support software with which he can perform the procedure in real-time while keeping the stent at rest once he has used it. Above all, the service system of Shimadzu Corporation is excellent, and the speedy and adaptable after-sale service is highly reliable, which was actually an important factor when selecting a model.

Team medical care from the overall community

What is essential for community medical care is to establish

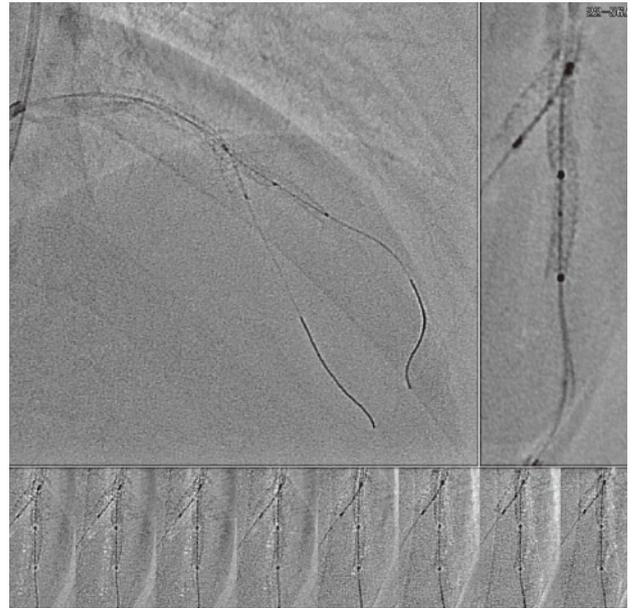


Fig.2 SCORE StentView image at the bifurcation

The stent edge and balloon marker are clearly visualized, which is useful for positioning at the time of post-dilation

a high level of cooperation, says Dr. Kawai. He thinks that it is beyond irresponsible that patients are treated in a core hospital where they can get state-of-the-art medical care only in the acute phase and then they are only referred to general practitioners. A system is necessary in which emergency care can be provided 24 hours a day, followed by careful follow-up, and the information obtained is fed back to general practitioners, which they can use for daily management. To cooperate with one another and to improve one another are the concepts of “team medical care in the community,” he says.



Even if PCI is performed in patients with coronary artery disease, their long-term prognosis will not improve if cardiovascular disease develops or myocardial infarction recurs. In order to improve the situation, interventions by a cardiovas-

cular internist are necessary both for the group of patients with a high risk of cerebral infarction and for patients with peripheral arterial disease (PAD) who develop myocardial infarction at a high rate, says Dr. Seki. Interventions include optimal medical therapy and lifestyle habits in addition to revascularization.

In the context of an aging society and an increase in diabetes, the number of patients with arteriosclerosis is rapidly increasing. Above all, PAD is often accompanied by coronary artery disease or cerebrovascular disease, and has a very poor prognosis. Despite the fact that the 5-year survival rate is about 70%, which is almost equivalent to that for colon cancer, PAD is not well known both to doctors and patients. It would be very disadvantageous for patients to undergo a major amputation. This is the reason why Dr. Seki came to have an interest in PAD.

Importance of education and multidisciplinary treatment

In Chikamori Hospital, endovascular therapy (EVT) started in 2008. Since screening for PAD was performed in patients with coronary artery disease at first, he had the impression that there were very few patients who required revascularization. There were a few patients, and the number of staff members who were involved in EVT was also small. Therefore, Dr. Seki considered how cardiovascular internists can examine patients with PAD, and began to engage in educational activities for core hospitals and practitioners in Kochi Prefecture through lecture meetings. In addition, he had a conference with other departments and allied healthcare providers once a month in the hospital and tried to construct an in-hospital system. As a result, they came to be able to give multidisciplinary treatment with team spirit, and the number of patients with EVT “who need treatment” increased, resulting in 300 patients in 2013.

Total vascular care is essential for PAD patient

Most of the patients with PAD are the elderly with various comorbidities. That is, it is not enough to treat target lesions, but total vascular care is also required. Since the cardiovascu-

lar internists are in the department focusing on the treatment of the heart, it is only natural that they mainly look at the heart. However, if there are no cardiovascular internists who firmly understand PAD as a disease, the approach to the treatment of the same patient differs, he says. Dr. Seki thinks it is necessary for the cardiovascular internists to understand the disease including the living background of patients, which is the key point for total vascular care.

Device with a high exposure reduction effect

Trinias by Shimadzu Corporation used for the treatment of PAD has a 12-inch square flat panel. In peripheral intervention (EVT), a wide view with which a picture of the area from the renal artery to around the external iliac artery can be taken with one DSA is a great advantage. In addition, if SCORE RSM is used, only about 20 cc of contrast medium is required for the screening of the lower extremities from terminal aorta to BK of both legs. Furthermore, the exposure can be further reduced by using SCORE PRO Advance. Even in a complicated patient for whom the procedure time exceeded 3 hours, the exposure was 1 Gy or less when measured. In simple patients, the exposure can be reduced to about 0.2 Gy. “Trinias is not only easy to use, but is also a very useful device in terms of reduction of exposure, which is a problem at present,” says Dr. Seki.

Wishing to free patients from suffering

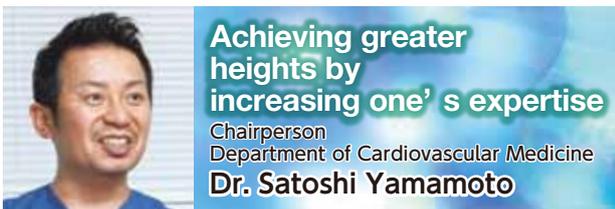
Do we take a further step from PCI to EVT? Or do we want to focus on peripheral treatment? Since patients with PAD





have suffered for a long time until they are old, they will be very happy if they can be freed from their suffering. That is the motivation for Dr. Seki to address PAD treatment. Meanwhile, patients will shut their minds if they feel that they are being given a superficial treatment, and some may even refuse treatment. They may feel that “It can’t be helped now. I have suffered such a long time.” It is the time to start PAD treatment when the patient and the doctor have a deep level of communication for “curing the disease together.” Dr. Seki emphasizes that more than anything else it is required to give full attention to the patient with a passion for freeing the patient from suffering.

indication for PCI fairly strictly after he started utilizing FFR, and he thinks that the number of patients with PCI in Chikamori Hospital may decrease. However, this is a good thing when you consider what medical care should be, he says. And in consideration of the low medical examination rate in Kochi Prefecture, Dr. Yamamoto energetically engages in educational activities for primary and secondary prevention. Since there is a serious doctor shortage in the areas a little outside of the cities in Kochi Prefecture, the best thing is to reduce the risk of acquiring ischemic disease through primary prevention. Therefore, he wants to place emphasis on educational activities, but since it is difficult to do this alone, he wants the government to think about doing this as well.



It is about 10 years since Dr. Yamamoto started engaging in PCI. “I know that I started later, so I am more voracious than anyone else,” he says with a smile. He has been devoted to PCI for 10 years. Dr. Yamamoto has come to think of the

“Regarding CTO as well, it is my goal to have the same results as in the cities,” says Dr. Yamamoto. When they treat complicated lesions, what really counts is the skill. He talks about the importance of increasing expertise. Self-improvement is most important for enhancing skills after all, but to actively participate in live events or study meetings, it is physically difficult to go out frequently. Therefore, efforts are implemented to invite the experts in CTO and see the procedure for extremely difficult lesions firsthand in Chikamori

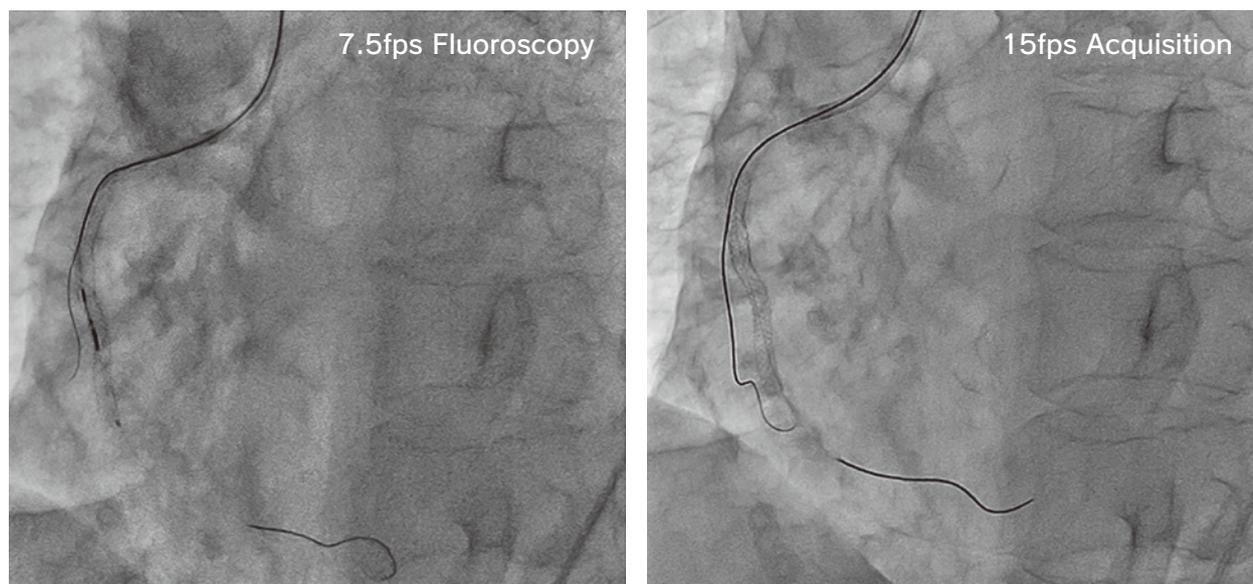


Fig.3 Fluoroscopy and Acquired images using SCORE PRO Advanced

Although this is fluoroscopy at a low frame rate of 7.5 fps (left), its image quality is close to the acquired image with 15 fps (right) and excels in the visibility of devices.

Hospital. In addition, they exchange information with the facilities in the prefecture, working hard together. “Since the number of staff members increased, I must develop myself while developing younger doctors,” says Dr. Yamamoto.

Ways to further enhance safety

Dr. Yamamoto’s impression is that the PCI support software SCORE StentView is convenient once you start using it. He realizes that he can actually use it during treatment because the stent is highlighted and enlarged in real-time and looks as if it is at rest. Since the balloon can be fully dilated in the stent by using SCORE StentView, detachment of the stent edge can be prevented. It also allows easier positioning of the stent. Since the stent has become thinner recently, it is very difficult to see it. He feels reassured with SCORE StentView in such cases. He even feels that he may not be able to perform the procedure without this software after he started using it.

Furthermore, Dr. Yamamoto explained about the exposure

reduction effect of SCORE PRO Advance with examples. By using SCORE PRO Advance, with a frame of 7.5 fps, wiring equivalent to that with 15 fps can be performed while maintaining a satisfactory image quality, and so there is a realization that exposure has been reduced overwhelmingly (Fig.3).

Providing necessary treatment when necessary

Dr. Yamamoto emphasizes that it is the duty of doctors to provide optimal treatment when necessary with a passion for providing treatment to the extent possible. Above all, he showed the idea that community medical care will be enriched by being involved in the community not as PCI operators but as internists.

Chikamori Hospital has a hospital culture of “working vigorously with a sense of satisfaction even when busy.” We can clearly feel the passion for medical care here.

Supporting
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Part two

**Creating an environment
for providing better medical care**

Tokorozawa Heart Center

2-61-11, Kamiarai, Tokorozawa, Saitama 359-1142, Japan

TEL 04-2940-8611 (main)

FAX 04-2940-8613



Dr. Masami Sakurada
Hospital Director

This is the second report on the facility of Dr. Masami Sakurada. The first report was made immediately after the start of his practice, when the facility was still called Tokorozawa Heart Clinic. In the fourth year of his practice, his achievements were recognized by the prefecture, and he was given permission to call the facility the Heart Center. Ten years have passed since the start of his practice and his facility is continuing to develop.

From Heart Clinic to Heart Center

Tokorozawa Heart Center, which at first was a clinic with 19 beds, changed its form to a hospital with the number of beds increased to 30 in 2014. He says that he established the facility so that it could be operated as a hospital from the start. In short, the rooms that had been empty were changed into wards, which had been the original intention. Supported by a deep trust from nearby practitioners, Tokorozawa Heart Center, which is in charge of all patients with ischemic heart disease in the Tokorozawa area, has further strengthened its presence.

Furthermore, Dr. Sakurada opened a satellite clinic called Shintoko Ekimae Clinic in July this year. This clinic, affiliated with Tokorozawa Heart Center, was established for patients who come to the Heart Center by train. Actually, To-

korozawa Heart Center is probably a little too far of a walk from the station. The number of his patients who have weak limbs or cannot drive due to aging has increased. The clinic without beds, which was opened in front of the station for the convenience of such patients, exactly embodies the community needs. Patient information is shared via electronic medical records at both Shintoko Ekimae Clinic and Tokorozawa Heart Center. An environment has been created for patients to receive optimal treatment for whichever place they visit.

**Excellent modality reduces
the burden on operators**

The number of patients with PCI at Tokorozawa Heart Center has remained almost unchanged since the start of practice. It is a little less than 900 every year. The number of pa-

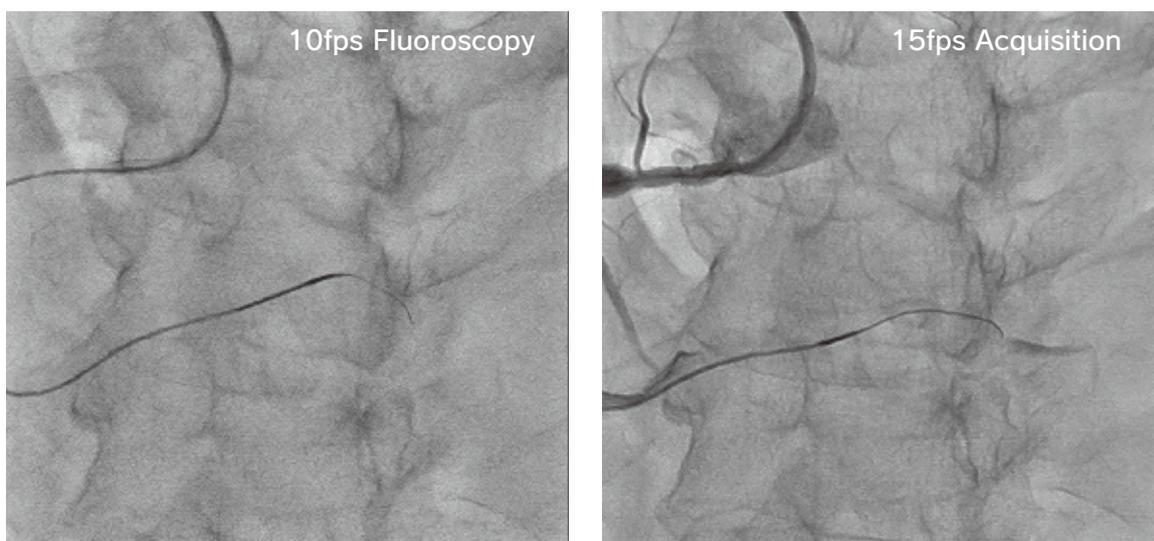


Fig.1 Fluoroscopy and Acquired images using SCORE PRO Advanced

These are highly magnified images with a 4.5-inch view, but the wire tip can be clearly seen.

tients with EVT is about 300, and it is increasing. However, “There is less of a chance of being called out at night,” says Dr. Sakurada smiling with a pleased look. He adds that one of the reasons why his burden has been reduced is because of the newly introduced latest angiographic device.

At Tokorozawa Heart Center, Trinias by Shimadzu Corporation was introduced in 2013. Trinias has two types: a 12-inch FPD and an 8-inch FPD, and the type that was introduced at Tokorozawa Heart Center is the type with an 8-inch FPD. This state-of-the-art device is installed in two catheter rooms. Dr. Sakurada appreciates that Trinias not only is a very easy-to-use model, but also greatly contributes to reducing the burden on operators, such as by reducing the procedure time with the unique PCI support software.

SCORE PRO Advance makes a reduction in the amount of exposure and contrast medium a reality

Trinias is equipped with a PCI-supported real-time image-processing unit called SCORE PRO Advance. To put it simply, this PCI support unit is a unit which independently calculates the fluoroscopic image of the tissue and that of the device and displays the images by enhancing contrast while suppressing noise. Since it not only enhances contrast but also suppresses noise effectively by tracking the motion of heartbeats (motion tracking), it is workable enough even

with a slower frame rate. It is a unit which has realized something like antinomy: clear image quality can be obtained even if the imaging conditions for the injector are reduced by about 30% of that in the past, and precise and high-resolution images can be obtained with a much smaller amount of contrast medium (Fig.1). A good view makes the procedure speedy, and a high exposure reduction effect can be obtained. In fact, skin disorders have rarely occurred since Trinias was introduced at the facility of Dr. Sakurada.

When asked about the actual usability, he answered that he could easily see the direction of a very slight shaping of the wire, which contributed to a high success rate for the procedure. Since it became easier to distinguish or differentiate blood vessels even with a smaller amount of contrast medium, the range of strategies has increased. Above all, since the course and condition of the wire can be confirmed on a different level from conventional fluoroscopy, a high level of safety can be achieved. The microchannel used for the treatment of CTO can also be easily confirmed. In particular, since Dr. Sakurada often uses relatively thin wires of 0.008 inches in diameter, he says that he cannot do without SCORE PRO Advance, with which he can easily see the condition of the wire.

In addition, since the amount of contrast medium used at one time was reduced, multivessel lesions, which had to be

treated in two stages up until now, can be treated in one stage. Dr. Sakurada feels that it has profound significance for his treatment strategy because he no longer needs to think about the amount of contrast medium. Furthermore, although he feels that the amount is “very small,” the image quality is clear and perfect. Since PCI can be performed for CTO and complex lesions without any difficulty, he feels no inconvenience in terms of image quality.

Supporting a clear finish

Dr. Sakurada is also very appreciative of the PCI support software called SCORE StentView. It displays the stent portion as if it is resting with real-time image processing, and strongly supports the operator for optimal stent placement or at the time of overlapping. For example, let’s confirm the relative position of the stent. So far, the procedures for removing the balloon, confirmed by inserting IVUS and inserting the balloon again have been followed, but the confirmation by IVUS can be omitted by using SCORE StentView. In short, the procedure time can be reduced, leading to a great reduction in the burden both on the patient and the operator.

SCORE StentView continuously projects the stent portion at rest in real-time on the monitor with a newly-developed algorithm. In short, deformation of the stent can be observed in real-time, and a very severe stent placement with minimum overlap becomes easier. In addition, while using SCORE StentView, it has been found out that it excels in visualizing not only the stent but also calcification (Fig.2). Since this software is not intended to be used with additional contrast medium, no burden is placed on either the patient or the operator.

Dr. Sakurada has chances to visit other facilities to perform practical examinations for medical specialist qualifications, and witnesses scenes where the procedures become complicated because SCORE StentView has not been introduced, resulting in longer procedure times. SCORE StentView is used not only in special circumstances but also in almost all cases at Tokorozawa Heart Center. “It is software that is absolutely necessary,” says Dr. Sakurada. All the doctors at

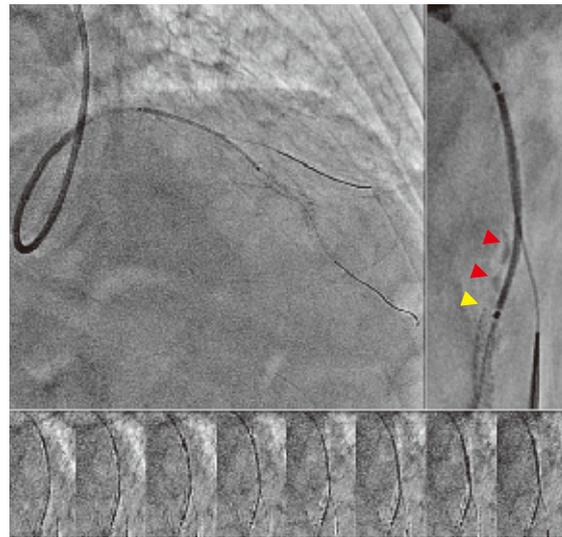


Fig.2 SCORE StentView is useful at the time of minimum overlapping

Not only the positions of the stent edge and balloon marker (yellow▲), but also those of calcification (red▲) can be clearly visualized.

other facilities who come to view his facility uniformly agree that SCORE StentView is very useful when they go back.

Seamless treatment of vessels from the coronary artery to the lower extremities

Since peripheral treatment increases every year, PCI and EVT may be performed at one time at Tokorozawa Heart Center. On such occasions, Trinias, with which treatment of vessels from the coronary artery to lower extremities can be achieved, is very useful. Dr. Sakurada’s impression is that it is easier to provide treatment even when there are few staff members or in an emergency because less staff members are required to operate the system. This system with which the whole body can be treated seamlessly may be used reliably under all circumstances.

He is also quite satisfied with the service. He is grateful for the thorough and adaptable service, which leads to reliability. “Since the facility is called a Heart Center, we want to have the best equipment, and this desire is supported by the service,” says Dr. Sakurada. He is impressed with the attitude of the manufacturer who provides in-depth feedback on the opinions from the medical site.



A large screen monitor that once used becomes indispensable

In the catheter room, an enormous monitor of 56 inches immediately draws attention. In addition to cineangiograms, CT and IVUS can be displayed at the same time and in whatever size by dividing the monitor screen. Dr. Sakurada praises this system, saying that now he has used it, he cannot go back. At first, this large monitor was installed only in the first catheter room. He related the following episode: since the doctors could clearly realize the difference when they performed the procedure in the second catheter room where a traditional monitor was installed, they all wanted to perform the procedure in the first catheter room. At present, this monitor is also installed in the second catheter room.

Dr. Sakurada was fascinated with this large monitor the moment that he saw it when he was visiting a facility. In the first place, the coronary artery can be seen at more than four times the size of a traditional monitor, and yet there is no roughness to the enlarged images on the display. More importantly, a large screen is easy to see, and there is no need to gaze at the monitor persistently.

With this monitor system, fine collateral circulation and microchannels necessary for a retrograde approach can also be observed in detail. In addition, since the guiding catheter and the wire in the apex can be seen in a view, accidents such as perforation can be prevented while ensuring a high degree of safety. Fundamentally, the probability of accidents is high at less-experienced facilities with few cases or facilities with no skilled PCI operators, but peace of mind will be increased by establishing such a system. Dr. Sakurada feels that such a monitor system will become mainstream in the future.

Issues and future prospects

Tokorozawa Heart Center has scaled up from a clinic to a hospital. Since the number of staff members is to be increased this fall, the number of cases to be treated will further increase. The style of Dr. Sakurada is to provide one-on-one teaching and hands-on training in accordance with his philosophy that younger staff will grow more by learning through short-term intensive training.

Dr. Sakurada says that so far they cannot treat diseases other than ischemic heart disease, such as arrhythmia, because of the shortage of staff, but he wants to enhance the hospital functions rapidly since the number of staff members is increasing. He added that he wants to develop the Heart Center as a cardiac disease hospital in Saitama Prefecture widening its scope so that ablation can also be performed in the future, while considering setting up more catheter rooms.

“Good doctors are necessary in order to provide good medical care, and good equipment is necessary to assemble a team of good doctors. If the equipment is good, we can do more and more things,” says Dr. Sakurada. Tokorozawa is also aging, and those who were healthy at the start of practice are now visiting the hospital as patients. In that sense, the community needs are obvious, and therefore he wants to work towards creating a facility that meets such expectations. Securing more staff members will be necessary in order to realize his concept, but it does not seem to be so difficult after learning about his ideas.

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Part three

**Aims of internists who compete
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Dojinkai social medical corporation, Mimihara General Hospital

4-465 Kyowa-cho, Sakai-ku, 590-8505 Sakai, Osaka, Japan

TEL 072-241-0501 (main)

FAX 072-244-3577



Dr. Shozo Ishihara

Director Department of cardiovascular medicine

Mimihara General Hospital is a community-based hospital that was established 61 years ago in Sakai City, Osaka. It became a community support hospital in November last year and greatly contributes to community medical care in Sakai City. It will be a new hospital in 2015 and will further push forward, creating a hospital which advances together with the community.

Providing equal high-quality medical care

Mimihara General Hospital is a medium-sized hospital with 386 beds and is one of the hospitals that support medical care in Sakai City with a population of 800,000. Under the basic policy of “promoting activities for providing high-quality medical care without discrimination,” 28 departments including a special outpatient department are in full operation 365 days a year. It also puts effort into emergency medical care, and the number of admitted ambulances is as many as 4,200 a year.

Mimihara General Hospital basically does not depend on temporary staffing from university medical offices, and doctors who approve of the philosophy and attitude of the hospital have been assembled. Therefore, their motivation is high and their camaraderie is strong. Also, a sense of divisions

among medical departments is very low.

In the Department of Cardiology, 320 cases of PCI in 2013 were handled by 5 staff members. Among them, emergency PCI cases accounted for 20 to 25% of all cases. Since not only PCI but also treatment of arrhythmia and peripheral vessels as well as device treatment are performed, it may be very hard for the 5 staff members to perform all these duties.

Where does medical care end?

Dr. Shozo Ishihara, the director, who leads the department of cardiovascular medicine witnessed the struggle of health-care professionals at the time of the Great Hanshin-Awaji Earthquake when he participated as a medical volunteer during his college days. During his senior residency when he aimed to become a critical care doctor, he encountered PCI.



pletely treat myocardial infarction by themselves when the period of senior residency is over. The way of thinking is that the more the expertise of younger doctors increases, the greater the merits will be for patients, which will also be beneficial to younger doctors.

In addition, Dr. Ishihara ac-

Dr. Ishihara was impressed that the patients who may have died instantaneously could be saved if they were treated promptly.

It is important to perform PCI successfully, but it makes little sense if the patients cannot get back into society even if their heart has been improved, considers Dr. Ishihara based on his experience. That's why he wants to pass on to younger colleagues the attitude toward medical care in Mimihara General Hospital of providing medical care every day so that patients are supported until their social rehabilitation. The following words are very important: "The attitude of not considering that 'our job at the department of cardiovascular medicine is over because we have completed the treatment of the heart' is of the utmost importance."

However, there is a limit to individual power however hard he may try. Therefore, team medical care is emphasized without limiting the role of individuals in Mimihara General Hospital. They also work hard so that there is cooperation between the hospital and clinics as well as with other hospitals. The attitude of Mimihara General Hospital is to provide medical care considering the community as one team.

To increase the expertise of younger doctors

Dr. Ishihara says that regarding myocardial infarction, more patients will be saved by active involvement from younger doctors. Therefore, in Mimihara General Hospital, younger doctors are asked to perform PCI proactively. They keep trying so that they can judge whether something is safe or dangerous to a certain extent. The aim is that they can com-

actively teaches in words rather than saying to "see and steal" the technique. He communicates by explaining why they are performing this procedure or why they choose this device. By clearing up the questions of the younger doctors, they will further acquire knowledge about PCI.

A model hospital for Trinias

In Mimihara General Hospital, Trinias (8 inches) by Shimadzu Corporation has been introduced as a PCI system. This is the first installation of Trinias as a cardiac angio system. When Dr. Ishihara thinks back, he felt enthusiasm for and was moved by the words of the manufacturer, "We want to make this hospital a model hospital for Trinias." Shimadzu Corporation also paid sincere attention to his requests in regards to the imaging and made an effort to create sophisticated images. His concerns relating to the risk of installing the first system were dispelled by ongoing careful maintenance, which Shimadzu Corporation is good at. Dr. Ishihara really felt the commitment of the manufacturer through frequent communication, and he finds it rewarding to be part of the ongoing development of the system.

In addition, Dr. Ishihara thinks it is an advantage that the system by Shimadzu Corporation is equipped with an interface that radiological technologists can easily use. Since allied healthcare professionals frequently use the system, it is convenient that it has an intuitive interface and display. It is not necessary to go down the hierarchy many times to call up necessary functions. "The PCI environment in Japan was well considered and the fact that it is made in Japan is also a

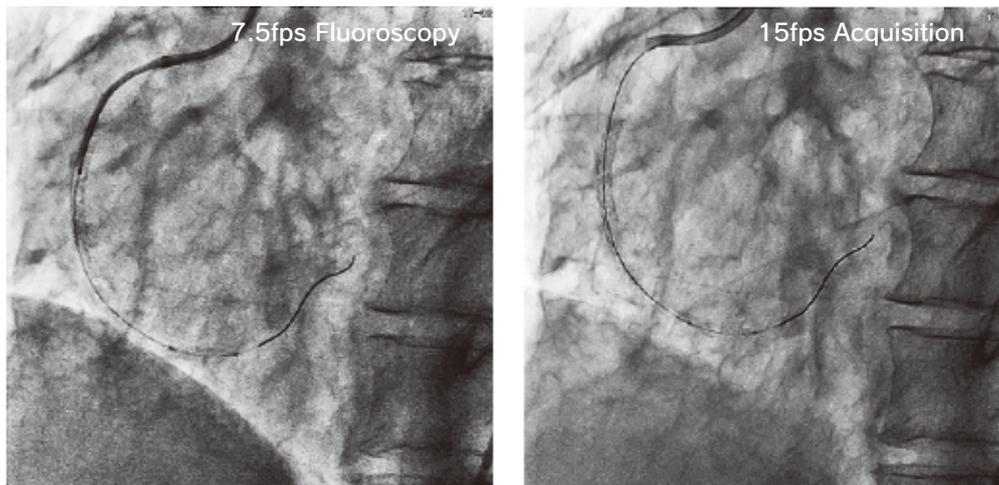


Fig.1 Fluoroscopic and filmed images by SCORE PRO Advance

Though it is fluoroscropy with a low rate of 7.5 fps (left), it has an image quality close to film with 15 fps (right) and excels in visibility of the device.

point worth considering,” says Dr. Ishihara.

Fluoroscopic images that support careful PCI

With the spread of FPD, images can be taken clearly with any device at present. However, most of the procedures are performed under fluoroscopic guidance. That is, what influences a feeling of stress on the procedure is the state of fluoroscopic images. To dissolve this feeling of stress, a real-time image-processing unit was developed to improve visualization of fluoroscopic images called SCORE PRO Advance. To put it simply, there are no afterimages on the fluoroscopic images. The difference is evident through comparisons, and Dr. Ishihara even says, “In comparison with the initial images when there was no SCORE PRO Advance, the images seem to be in different spheres with a remarkable improvement in the image quality.” He says that the fineness of the images created by SCORE PRO Advance is clearly different when he sees fluoroscopic images in conference presentations or those stored for a retrospective study of the cases (Fig.1).

The exposure reduction effect of SCORE PRO Advance both for patients and healthcare professionals is also a great merit during operation. In general, acquired images are clear, but associated with more exposure. With fluoroscropy, though exposure is reduced, the image quality decreases compared with

acquired images. However, the fluoroscropy images created by SCORE PRO Advanced appear closer to acquired images. In the words of Dr. Ishihara, “we cannot go back to the previous system.”

A must-use application

Another special feature mounted on Trinias is SCORE StentView. Dr. Ishihara says, “It is better to use it at any cost.”

As a result of reviewing the protocol and algorithm and promoting optimization, SCORE StentView reemerged as an application which is incomparably more precise than the previous one and which shows the main points the operator wants to see. Once, a doctor in another hospital who had been using the previous StentView was surprised to see SCORE StentView in Mimihara General Hospital, saying, “I can see the images so clearly!”

SCORE StentView exerts an effect at various time points, such as when aligning the stent at the bifurcation or in a long lesion and when placing or expanding the stent just in time. In addition, the stents nowadays are low-profile and very difficult to see under fluoroscropy, but even the degree of expansion or the deformation of the stent can be clearly evaluated by using SCORE StentView (Fig.2).

Stent-weighted image systems are also released by other

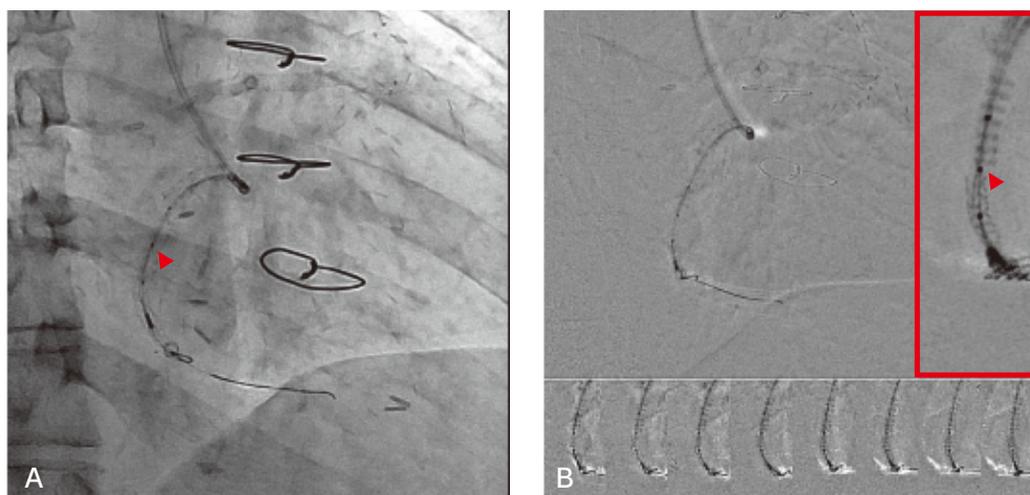


Fig.2 SCORE StentView

A: Acquired image at the time of IVUS. It is difficult to fully understand the position and shape of the fracture.
 B: Image with StentView using IVUS marker. The position and shape of the fracture can be clearly understood.

companies, but what makes SCORE StentView different from the rest is that the images can be seen on time (in real-time). In short, it is possible to proceed with the procedure without stopping while looking at SCORE StentView. Dr. Ishihara unreservedly praises it, saying, “I could not do without it once I started using it.”

Making full use of medical care support functions

The functions mounted on the present Trinius, such as the reduction of procedure time, reduction of burden on the staff of the catheter room and reduction of exposure both to patients and the staff, thoroughly meet the needs of the entire catheter room. Among others, the potential for powerful medical care support functions to provide more advanced and safer PCI to patients can be felt strongly if they are made full use of not only by younger staff who are developing their skills but also by veterans. Now that there are no big differences in the image quality when taking images, how to utilize medical care support functions will be a major point in selecting the model in the future, considers Dr. Ishihara.

The next step for contributing to the community

The aim of Dr. Ishihara is to become an internist who com-

petes with a high degree of professionalism and overall ability. He wants younger doctors to become strong cardiovascular internists by further developing their ability. He wants them to further devote themselves to the study by participating in conferences in Japan and abroad, and he hopes that it may lead to increasing the level of PCI in Japan. He does not want them (including himself) to forget that they are comprehensive cardiovascular internists while developing their specialties, he says.

After the hospital moves to a new location, the beds in the department of cardiovascular medicine will be increased to 50 from 41 at present. It is an indication of expectations for the department of cardiovascular medicine led by Dr. Ishihara. Mimihara General Hospital, which is being upgraded to make an even greater contribution to the community, will open on April 1, 2015.

