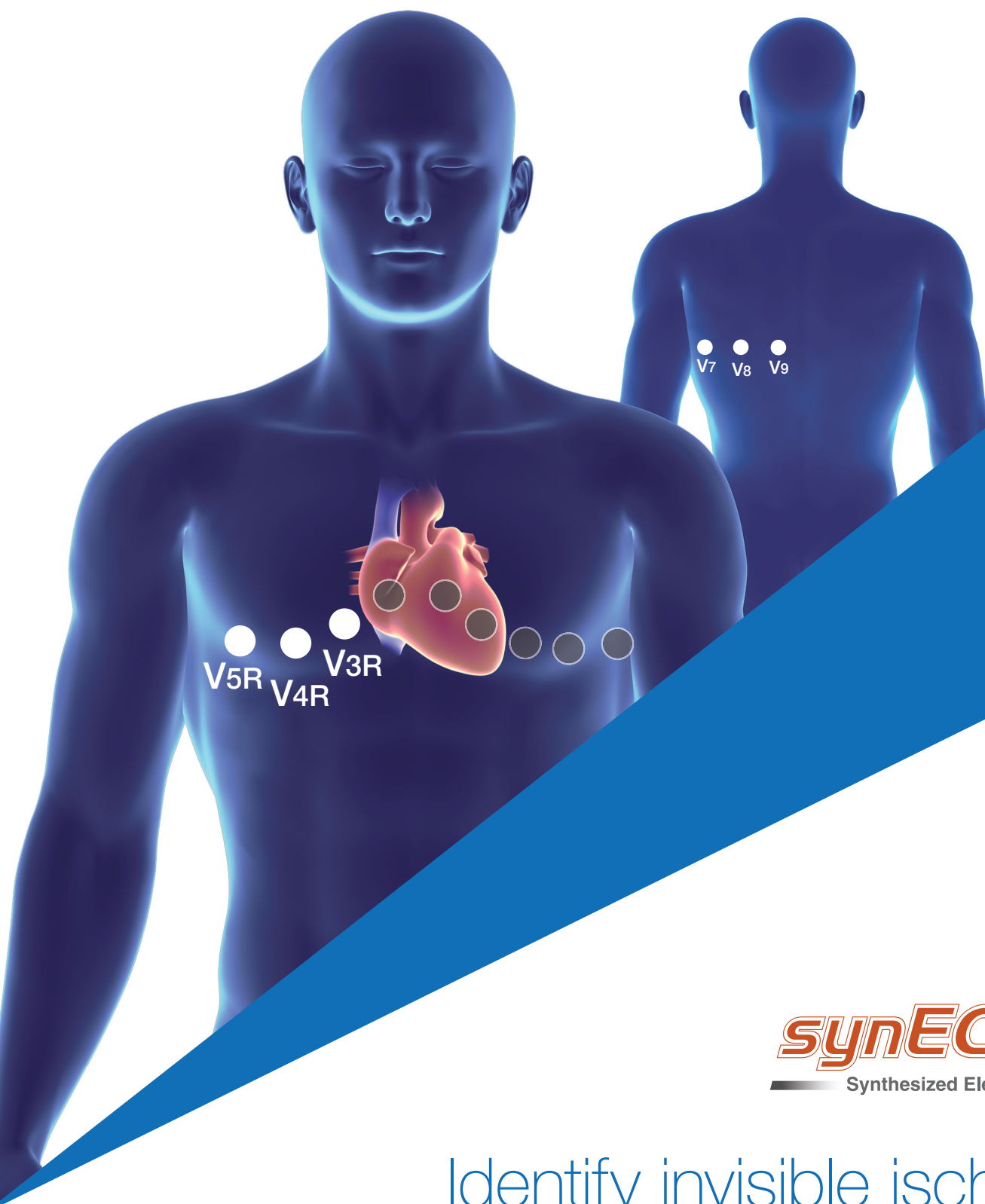


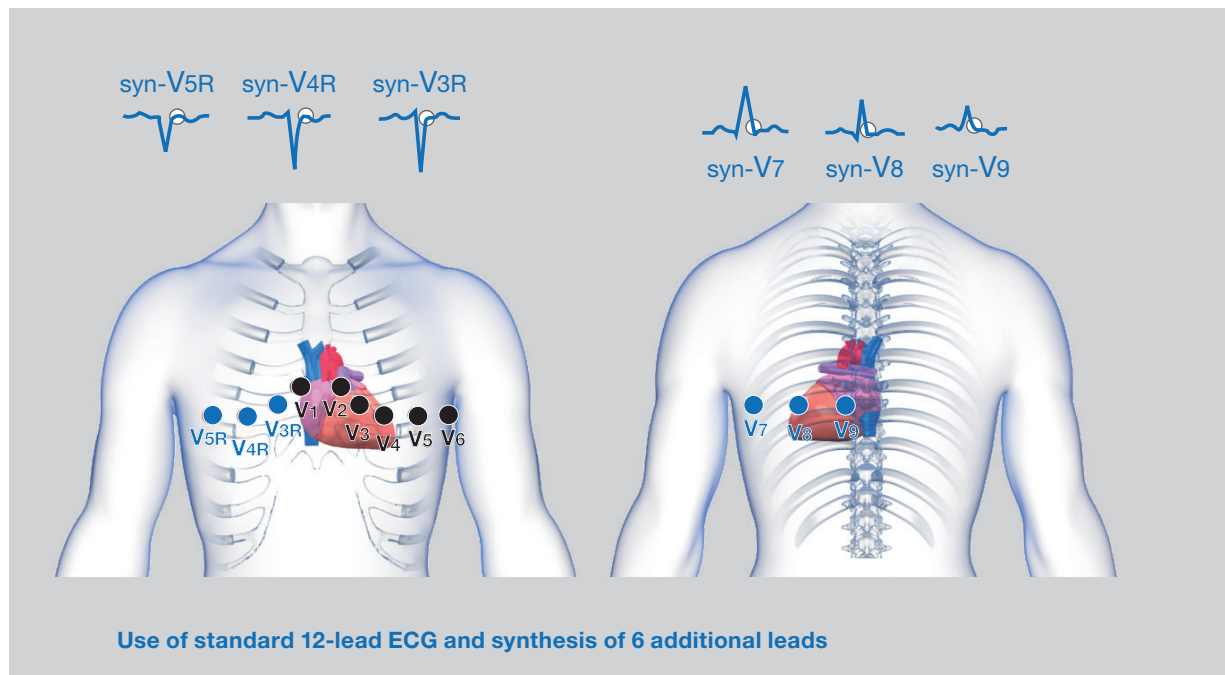


synECi18
Synthesized Electrocardiogram

Identify invisible ischemia

Identify invisible ischemia

18-lead ECG from standard 12-lead ECG



SynECi18 helps to identify invisible ischemia

Higher sensitivity

Standard 12-lead ECG is a gold standard method in suspected Acute Coronary Syndromes (ACS) in patients presenting with acute chest pain. However, standard 12-lead ECG does not provide sufficient information in posterior wall and right ventricle wall ischemia detection. Additional leads (V3R-V5R, V7-V9) may enhance diagnostic accuracy with added sensitivity for ischemia detection.^{1,2} Especially when presentation is not typical or initial 12-lead ECG is negative, diagnostic inaccuracy may cause harmful delays. Proper ischemia detection may prevent myocardial damage or may shorten the time to PCI (percutaneous coronary intervention) indication.

Practical relevance

Even though recommended by guidelines^{3,4}, additional workload, patient immobility and a lack of confidence often make the 18-lead ECG absent in a routine patient care. Nihon Kohden developed a synthesized 18-lead ECG (standard 12-lead ECG

and 6 synthesized leads) that can help to overcome those obstacles.

Effectiveness

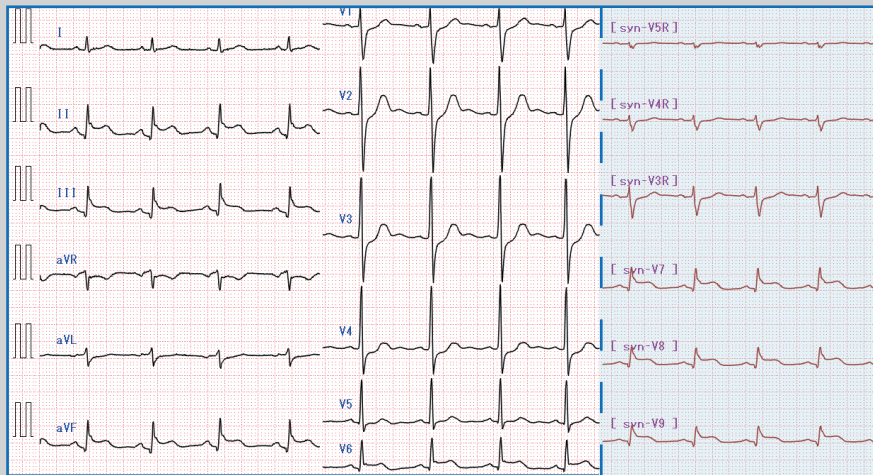
The clinical significance of 18-lead ECG with synthesized right-sided and posterior leads (V3R-V5R, V7-V9) for the rapid diagnosis of STEMI within 10 minutes of the emergency department (ED) arrival is presented by several studies.^{5,6,7} Especially for the early detection of right ventricular infarction the synthesized 18-lead ECG has been judged valuable.

A preliminary evaluation in Europe with Caucasian population confirmed the previous study results on Asian population that the synthesized 18-lead ECG is an effective ischemia triage tool.⁸

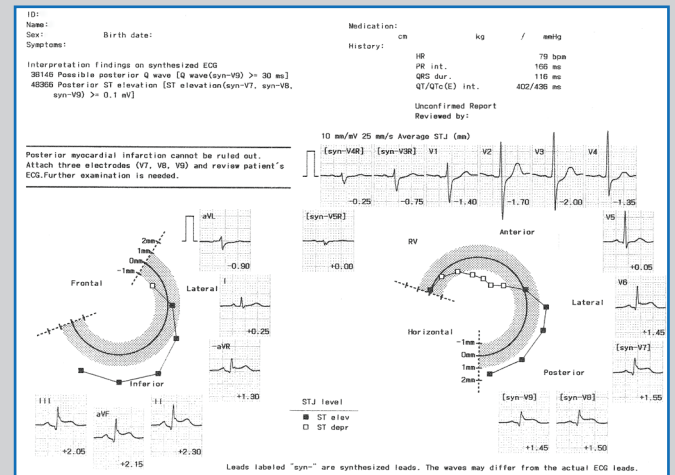
Accuracy

The accuracy of the ST segment of the synthesized ECG has been considered to be highly reliable and is useful to identify the area at risk.^{9,10}

A new way of reading an ECG



Standard 12-lead ECG



Synthesized 6 leads

ST Review

Enhance outcomes through early recognition and stratification



Same workload and costs

- No additional procedures
- No additional costs
- Immediate application
- Easy visualization



Optimized patient safety

- All information immediately accessible
- Possible reduced risk of missed abnormalities
- Higher sensitivity for ischemia detection (96,8% with 18-leads vs 88,4% with 12-leads)¹
- Early recognition of actual STEMI presenting as NSTEMI on standard 12-lead ECG



Reduced time to reperfusion

- Early fibrinolysis or PCI to patients with acute myocardial infarction (AMI) with properly defined ischemic risk area
- Early "STEMI fast track approach" in high risk patients presenting as NSTEMI



Improving Healthcare with Advanced Technology

Nihon Kohden is committed to support caregivers with advanced technology to save lives. We feel this is our greatest responsibility.

That is why 'Saving lives – every moment counts' contains our solutions for resuscitation that can contribute to strengthen the survival chain.

Electrocardiographs with synECi18

cardiofax 



Cardiofax M (ECG-2350)

cardiofax 



Cardiofax V (ECG-2450)

cardiofax 



Cardiofax G (ECG-2550)

Simple operation

- Adjustable easy-to-view 7 inch color LCD display
- Preview function
- On-screen guide function
- Internal memory of 400 ECG files
- PDF output

Intelligent analysis

- ECAPS 12C ECG analysis program
- SynECi18 option: QP-230E
- ECG data management software polaris.one

- Adjustable easy-to-view 12 inch color LCD display
- Preview function
- On-screen guide function
- Internal memory of 18,000 ECG files

- ECAPS 12C ECG analysis program
- SynECi18 option: QP-254E
- Stress testing option: QP-246E
- ECG data management software polaris.one

- Adjustable easy-to-view 15 inch color LCD display
- Preview function
- On-screen guide function
- Internal memory of 800 ECG files
- 10 min memory
- 5 min trend data

- ECAPS 12C ECG analysis program
- SynECi18 option: QP-254E
- Late potential option: QP-180E
- R-R interval measurement and trending
- ECG data management software polaris.one

¹ Zalenski RJ et al.: Value of posterior and right ventricular leads in comparison to the standard 12-lead electrocardiogram in evaluation of ST-segment elevation in suspected acute myocardial infarction. Am J Cardiol. 1997 Jun 15;79(12):1579-85.

² Amsterdam et al.: Testing of Low-Risk Patients Presenting to the Emergency Department with Chest Pain. A Scientific Statement From the American Heart Association Circulation. 2010;122:1756-1776

³ 2014 ESC/EACTS Guidelines on myocardial revascularization.

⁴ 2012 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation.

⁵ Katoh T., et al.: Clinical Significance of Synthesized Posterior 1 Right-Sided Chest Lead Electrocardiograms in Patients with Acute Chest Pain. J Nippon Medical School 2011; 78 (1): 22-29.

⁶ Ashida T., et al.: Synthesized 18-Lead Electrocardiogram in Patients Treated in the Emergency Department. Circulation.2013; 128: A212.

⁷ Saitoh Y., Goseki Y., Yazaki Y., Yamashina A.: Usefulness of synthesized posterior/right-sided chest lead electrocardiograms. European Heart Journal (2012) 33 (Abstract Supplement), 575.

⁸ Eppe N. MD, et al.: Synthesized 18-lead electrocardiogram as routine myocardial ischemia detection in an emergency department: a preliminary evaluation in Europe. Clinique Notre-Dame de Grâce, Gosselies, Belgium. Critical Care 2015, 19 (Suppl 1):P161 (doi: 10.1186/cc14241).

⁹ Saitoh Y., Goseki Y., Yamashina A.: Accuracy of Synthesized Right-Sided/Posterior Chest Lead ECGs. Critical Care 2014, 18 (Suppl 1):P135, doi:10.1186/cc13325.

¹⁰ Wei D., et al.: Derived electrocardiograms on the posterior leads from 12-lead system: method and evaluation. Proceedings of the 25th Annual International Conference of IEEE IEMBS 2003; 1: 74-77.



NIHON KOHDEN EUROPE GmbH
Raiffeisenstr. 10, 61191 Rosbach, Germany
Phone: +49 6003 827 0, Fax: +49 6003 827 599
Internet: www.nihonkohden.com, E-mail: info@nke.de



NIHON KOHDEN CORPORATION
1-31-4 Nishiichiai, Shinjuku-ku, Tokyo 161-8560, Japan
Phone: +81 (3) 59 96-80 36, Fax: +81 (3) 59 96-81 00
Internet: www.nihonkohden.com