



# Joint Statement of the Korean Society for Thoracic and Cardiovascular Surgery and the Korean Society for Coronary Artery Surgery on Chapter 7.1 in the 2021 American College of Cardiology/American Heart Association/Society for Cardiovascular Angiography and Interventions Guideline for Coronary Artery Revascularization

Hyun Keun Chee, M.D.<sup>1</sup>, Ho Jin Kim, M.D.<sup>2</sup>, Ho Young Hwang, M.D.<sup>3</sup>, Joon Kyu Kang, M.D.<sup>4</sup>, Soonchang Hong, M.D.<sup>5</sup>, Jun Sung Kim, M.D.<sup>6</sup>, Jin Ho Choi, M.D.<sup>7</sup>, Young-Nam Youn, M.D.<sup>8</sup>, Sang Gi Oh, M.D.<sup>9</sup>, Wook Sung Kim, M.D.<sup>10</sup>, Man-Jong Baek, M.D.<sup>11</sup>, Suk Jung Choo, M.D.<sup>2</sup>, Chan-Young Na, M.D.<sup>12</sup>, Chang-Hyu Choi, M.D.<sup>13</sup>, Kyung Hwan Kim, M.D.<sup>3</sup>, Jeong-Seob Yoon, M.D.<sup>14</sup>, Kyung-Jong Yoo, M.D.<sup>8</sup>, on behalf of The Korean Society for Thoracic and Cardiovascular Surgery and The Korean Society for Coronary Artery Surgery

<sup>1</sup>Department of Thoracic and Cardiovascular Surgery, Konkuk University Medical Center, Konkuk University School of Medicine; <sup>2</sup>Department of Thoracic and Cardiovascular Surgery, Asan Medical Center, University of Ulsan College of Medicine; <sup>3</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Hospital, Seoul National University College of Medicine; <sup>4</sup>Department of Thoracic and Cardiovascular Surgery, Eunpyeong St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul; <sup>5</sup>Department of Thoracic and Cardiovascular Surgery, Wonju Severance Christian Hospital, Yonsei University College of Medicine, Wonju; <sup>6</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam; <sup>7</sup>Department of Thoracic and Cardiovascular Surgery, Daejeon Eulji Medical Center, Eulji University School of Medicine, Daejeon; <sup>8</sup>Department of Thoracic and Cardiovascular Surgery, Severance Hospital, Yonsei University College of Medicine, Seoul; <sup>9</sup>Department of Thoracic and Cardiovascular Surgery, Chonnam National University Hospital, Chonnam National University Medical School, Gwangju; <sup>10</sup>Department of Thoracic and Cardiovascular Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine; <sup>11</sup>Department of Thoracic and Cardiovascular Surgery, Korea University Guro Hospital, Korea University College of Medicine, Seoul; <sup>12</sup>Department of Thoracic and Cardiovascular Surgery, Hallym University Dongtan Sacred Heart Hospital, Hallym University College of Medicine, Hwaseong; <sup>13</sup>Department of Thoracic and Cardiovascular Surgery, Gachon University Gil Medical Center, Gachon University College of Medicine; <sup>14</sup>Department of Thoracic and Cardiovascular Surgery, Incheon St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Incheon, Korea

## ARTICLE INFO

Received August 22, 2022, Accepted August 30, 2022

## Corresponding author

Kyung-Jong Yoo

Tel 82-2-2228-8485, Fax 82-2-313-2992, E-mail [kjy@yuhs.ac](mailto:kjy@yuhs.ac), ORCID <https://orcid.org/0000-0002-9858-140X>

The Korean Society for Thoracic and Cardiovascular Surgery and the Korean Society for Coronary Artery Surgery would like to acknowledge the American College of Cardiology/American Heart Association/Society for Cardiovascular Angiography and Interventions (ACC/AHA/SCAI) Guideline for Coronary Artery Revascularization Committee for their accomplishments in formulating a new guideline for coronary artery revascularization [1]. The guideline has reflected the necessary and relevant issues of coronary artery revascularization. Notwithstanding, the guideline has led to controversies by downgrading

coronary artery bypass grafting (CABG) from the class of recommendation (COR) I to COR IIb in patients with stable ischemic heart disease (SIHD), normal left ventricular ejection fraction, and three-vessel coronary artery disease (CAD), as presented in chapter 7.1. The downgrading of the COR for CABG in these patients prompted The American Association for Thoracic Surgery (AATS) and The Society of Thoracic Surgeons (STS) to declare that they do not endorse the 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization [2]. Meanwhile, cardiac surgery societies from around the world have issued docu-



ments that support the AATS/STS statement [3-5].

The Korean Society for Thoracic and Cardiovascular Surgery and The Korean Society for Coronary Artery Surgery hereby express the following concerns with chapter 7.1:

1. The abrupt downgrading of the COR for CABG in the Guideline is predicated on the interpretation of the results from the International Study of Comparative Health Effectiveness with Medical and Invasive Approaches (ISCHEMIA) trial [6] and several meta-analyses [7-11]. However, these are not reasons for downgrading the COR for CABG in patients with SIHD.

(1) In the ISCHEMIA trial, only 20% of enrolled patients who were assigned to the initial invasive treatment group underwent CABG, and a substantial proportion of the patients experienced crossover of the treatment arms. Finally, a median follow-up duration of 3.2 years might be relatively short for elucidating the benefits of CABG.

(2) The majority of studies that constituted the meta-analyses only or mostly included patients who underwent percutaneous coronary intervention (PCI) rather than those who underwent CABG in the invasive treatment arm. Because there are inherent differences between CABG and PCI, these meta-analyses should not be used to justify the downgrading of the COR for CABG in patients with SIHD.

2. The optimal care for CAD patients should be provided through the collaboration of cardiac surgeons and cardiologists in the Heart Team, as suggested in the 2018 European Society of Cardiology/European Association for Cardio-Thoracic Surgery Guidelines on myocardial revascularization [12]. Contrary to previous guidelines, the current guideline was not generated under balanced leadership between cardiac surgeons and cardiologists from North America [13,14].

Again, we support the AATS/STS statement against the 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization, and expect that a new guideline will be developed through the collaboration of cardiac surgeons and cardiologists based on appropriate evidence.

## Article information

### ORCID

Hyun Keun Chee: <https://orcid.org/0000-0001-7041-352X>

Ho Jin Kim: <https://orcid.org/0000-0002-0809-2240>

Ho Young Hwang: <https://orcid.org/0000-0002-8935-8118>

Joon Kyu Kang: <https://orcid.org/0000-0002-5431-6305>

Soonchang Hong: <https://orcid.org/0000-0001-6415-8243>

Jun Sung Kim: <https://orcid.org/0000-0002-3663-5062>

Jin Ho Choi: <https://orcid.org/0000-0001-9667-2343>

Young-Nam Youn: <https://orcid.org/0000-0003-1498-4111>

Sang Gi Oh: <https://orcid.org/0000-0001-9394-4980>

Wook Sung Kim: <https://orcid.org/0000-0001-7808-3385>

Man-Jong Baek: <https://orcid.org/0000-0002-1494-4323>

Suk Jung Choo: <https://orcid.org/0000-0003-4291-302X>

Chan-Young Na: <https://orcid.org/0000-0001-6809-2253>

Chang-Hyu Choi: <https://orcid.org/0000-0002-1024-7432>

Kyung Hwan Kim: <https://orcid.org/0000-0002-2718-8758>

Jeong-Seob Yoon: <https://orcid.org/0000-0002-9669-2536>

Kyung-Jong Yoo: <https://orcid.org/0000-0002-9858-140X>

## Author contributions

Conceptualization: HKC, HJK, KJY. Data curation: HJK, HYH, JKK. Formal analysis: HYH, SH, JSK. Methodology: JKK, SH, JSK, JHC. Project administration: JHC, YNY, SGO, WSK, MJB. Visualization: YNY, SGO, WSK, MJB, SJC, CYN. Writing—original draft: HKC, HJK, HYH. Writing—review & editing: CHC, KHK, JSY, KJY. Final approval of the manuscript: all authors.

## Conflict of interest

No potential conflict of interest relevant to this article was reported.

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## References

1. Lawton JS, Tamis-Holland JE, Bangalore S, et al. 2021 ACC/AHA/SCAI guideline for coronary artery revascularization: a report of the American College of Cardiology/American Heart Association Joint Committee on clinical practice guidelines. *Circulation* 2022;145:e18-114.
2. Sabik JF 3rd, Bakaen FG, Ruel M, et al. The American Association for Thoracic Surgery and the Society of Thoracic Surgeons reasoning for not endorsing the 2021 ACC/AHA/SCAI coronary revascularization guidelines. *J Thorac Cardiovasc Surg* 2022;163:1362-5.
3. Ruel M, Williams A, Ouzounian M, et al. Missing the goal with the 2021 ACC/AHA/SCAI guideline for coronary artery revascularization. *Can J Cardiol* 2022;38:705-8.

4. Yokoyama H, Sawa Y, Arai H. *The Japanese Society for Cardiovascular Surgery, the Japanese Association for Thoracic Surgery and the Japanese Association for Coronary Artery Surgery do not endorse chapter 7.1 in the 2021 ACC/AHA/SCAI coronary revascularization guidelines*. *Ann Thorac Cardiovasc Surg* 2022;28:4A-6A.
5. Yadava OP, Narayan P, Padmanabhan C, et al. *IACTS position statement on “2021 ACC/AHA/SCAI guideline for coronary artery revascularization”*: section 7.1-a consensus document. *Indian J Thorac Cardiovasc Surg* 2022;38:126-33.
6. Maron DJ, Hochman JS, Reynolds HR, et al. *Initial invasive or conservative strategy for stable coronary disease*. *N Engl J Med* 2020; 382:1395-407.
7. Bangalore S, Maron DJ, Stone GW, Hochman JS. *Routine revascularization versus initial medical therapy for stable ischemic heart disease: a systematic review and meta-analysis of randomized trials*. *Circulation* 2020;142:841-57.
8. Windecker S, Stortecky S, Stefanini GG, et al. *Revascularisation versus medical treatment in patients with stable coronary artery disease: network meta-analysis*. *BMJ* 2014;348:g3859.
9. Navarese EP, Lansky AJ, Kereiakes DJ, et al. *Cardiac mortality in patients randomised to elective coronary revascularisation plus medical therapy or medical therapy alone: a systematic review and meta-analysis*. *Eur Heart J* 2021;42:4638-51.
10. Vij A, Kassab K, Chawla H, et al. *Invasive therapy versus conservative therapy for patients with stable coronary artery disease: an updated meta-analysis*. *Clin Cardiol* 2021;44:675-82.
11. Laukkanen JA, Kunutsor SK. *Revascularization versus medical therapy for the treatment of stable coronary artery disease: a meta-analysis of contemporary randomized controlled trials*. *Int J Cardiol* 2021; 324:13-21.
12. Sousa-Uva M, Neumann FJ, Ahlsson A, et al. *2018 ESC/EACTS guidelines on myocardial revascularization*. *Eur J Cardiothorac Surg* 2019;55:4-90.
13. Fihn SD, Gardin JM, Abrams J, et al. *2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for the diagnosis and management of patients with stable ischemic heart disease: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, and the American College of Physicians, American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons*. *J Am Coll Cardiol* 2012;60:e44-164.
14. Fihn SD, Blankenship JC, Alexander KP, et al. *2014 ACC/AHA/AATS/PCNA/SCAI/STS focused update of the guideline for the diagnosis and management of patients with stable ischemic heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines, and the American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons*. *J Thorac Cardiovasc Surg* 2015;149:e5-23.