

## Using coronary CT angiography for guiding invasive coronary angiography: potential role to reduce intraprocedural radiation exposure

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### OBJECTIVES

We investigated the potential reduction of patient exposure during invasive coronary angiography (ICA) if the procedure had only been directed to the vessel with at least one  $\geq 50\%$  stenosis as described in the CT report.

### METHODS

Dose reports of 61 patients referred to ICA because of at least one  $\geq 50\%$  stenosis on coronary CT angiography (CCTA) were included. Dose-area product (DAP) was documented separately for left (LCA) and right coronary arteries (RCA) by summing up the single DAP for each angiographic projection. The study population was subdivided as follows: coronary intervention of LCA (group 1) or RCA (group 2) only, or of both vessels (group 3), or further bypass grafting (group 4), or no further intervention (group 5).

### RESULTS

57.4% of the study population could have benefitted from reduced exposure if catheterization had been directly guided to the vessel of interest as described on CCTA. Mean relative DAP reductions were as follows: group 1 (n = 18), 11.2%; group 2 (n = 2), 40.3%; group 3 (n = 10), 0%; group 4 (n = 3), 0%; group 5 (n = 28), 28.8%.

### CONCLUSIONS

Directing ICA to the vessel with stenosis as described on CCTA would reduce intraprocedural patient exposure substantially, especially for patients with single-vessel stenosis.

### KEY POINTS

- Patients with CAD can benefit from decreased radiation exposure during coronary angiography.
- ICA should be directed solely to significant stenoses as described on CCTA.
- Severely calcified plaques remain a limitation of CCTA leading to unnecessary ICA referrals.

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