光干渉断層法による有益性は小さい (Abstract 4151)

DOCTORS：光干渉断層法は経皮的冠動脈インターベンション施行にさらに役立つ

DOCTORS: Optical coherence tomography sheds more light on percutaneous coronary intervention

光干渉断層法（OCT）は、経皮的冠動脈インターベンション（PCI）施行患者の冠動脈を可視化し、標準的な血管造影ガイド下PCIに比べ臨床転帰を改善する、と2016年ESC Congressで発表され、同時に*Circulation* に掲載された。血管造影ガイド下群に比べ、OCT群における冠血流予備量比（FFR）は有意に良好であった（p=0.005）。さらに、施術後FFR>0.90の患者数はOCT群において多かった（p=0.0001）。OCTにより、医師はステント植え込み前に血栓や石灰化をより多く確認することができた（それぞれp=0.0004およびp<0.0001）。これにより、抗血小板薬使用は、OCT群においてより頻度が高い結果となった（53.3%対35.8%）。

Full Text

Optical coherence tomography (OCT) can visualize the coronary arteries in patients undergoing percutaneous coronary intervention (PCI) and lead to better outcomes compared to standard angiography-guided PCI, according to new findings reported here.

Results of the DOCTORS (Does Optical Coherence Tomography Optimize Results of Stenting) study were presented in a Hot Line session at ESC Congress 2016, with simultaneous publication in *Circulation*.

In patients with non–ST-segment elevation acute coronary syndromes (NSTE-ACS), OCT "provided useful additional information beyond that obtained by angiography alone, and impacted directly on physician decision-making," reported the study's lead investigator Nicolas Meneveau, MD, PhD, from University Hospital Jean Minjoz, in Besançon, France.

OCT, which involves introducing an imaging catheter into the coronary artery to check vessel size, lesion characteristics, and stent positioning and expansion "led to a change in procedural strategy in half of cases," said Professor Meneveau.

However, "additional prospective randomized studies with clinical endpoints are required before it can be recommended for standard use."

The multi-center trial included 240 NSTE-ACS patients who were randomized 1:1 to standard fluoroscopy-guided PCI alone (angio group) or with the addition of OCT - performed an average of 3.8 times, before, during an after the procedure.

Overall, OCT was associated with better functional outcome than PCI guided by fluoroscopy alone, said Prof. Meneveau.

The primary endpoint of the study, which was fractional flow reserve (FFR) – a measure of blood flow and pressure in the coronary artery before and after the procedure - was significantly better in the OCT group as compared to the angio group (0.94 vs. 0.92, p=0.005).

In addition, the number of patients with a post-procedural FFR>0.90 was significantly higher in the OCT group (82.5% vs. 64.2%, p=0.0001).

Compared to angiography, OCT allowed clinicians to see significantly more thrombi (69% vs. 47%, p=0.0004) and calcifications (45.8% vs. 9%, p<0.0001) before stent implantation. This resulted in more frequent antiplatelet use in the OCT group (53.3% vs. 35.8%).

As well, OCT was also significantly more likely to reveal stent underexpansion (42% vs. 10.8%), incomplete lesion coverage (20% vs. 17%, and edge dissection (37.5% vs. 4%), compared to angio.

Stent malapposition, which is not visible under fluoroscopy alone, was observed in 32% of patients undergoing OCT.

These observations led to the more frequent use of post-stent overinflation in the OCT group (43% vs. 12.5%, p<0.0001) and a lower percentage of residual stenosis (7.0% vs. 8.7%, p=0.01).

The addition of OCT increased procedure time as well patients' exposure to fluoroscopy and contrast medium, but this did not increase complications such as peri-procedural myocardial infarction or impaired kidney function, added Prof. Meneveau.

"Findings of the DOCTORS study add to the cumulating body of evidence in favor of a potential benefit of OCT to guide angioplasty," he said. "The improvement in functional outcomes could translate into a clinical benefit in the longer term."

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