薬剤溶出ステントの安全性が明らかになった

ISAR-TEST-4：生分解性ポリマー薬剤溶出ステントの1年後の成績は永久ポリマーを基盤とした薬剤溶出ステントの成績と同等であった

ISAR-TEST-4: One-year outcomes with a biodegradable polymer drug-eluting stent are similar to those with permanent polymer-based drug-eluting stents

生分解性ポリマーを薬剤溶出ステント（DES）に使用することによりステント血栓症のリスクを軽減する可能性があるとの考えを支持する新たな研究結果が、ESC 2009で発表され、European Heart Journalに掲載された。新規発症の未治療冠動脈病変に対しPCI施行の選別をかけていない患者を、生分解性ポリマーDES（1,299人）または永久ポリマーDES（Cypher-652人またはXience-652人）を留置する群に無作為に割り付けた。一次エンドポイントは、12ヵ月以内の心臓死、標的血管に基づく心筋梗塞（MI）、または標的病変（TLR）に対する再血行再建であった。30日後の臨床転帰は両群間で差が無かった；心臓死、標的血管またはTLRに基づくMIは生分解性ポリマー群で4.4%、永久ポリマー群で4.5%に認められた（p=0.87）。明らかなステント血栓症は各々の群で5例ずつ（0.4%）認めた。6～8ヵ月後の冠動脈造影では、後期ステント内狭窄およびステント留置セグメント内再狭窄発症率に両群間の差はなかった（それぞれp=0.49、p=0.85）。一次エンドポイントは生分解性ポリマー群で13.8%および永久ポリマー群で14.4%であり、非劣性のクライテリア（相対リスク0.96、95%CI 0.78～1.17、p-非劣性=0.005；p-優越性=0.66）に合致した。

Full Text

There's new support for the idea of using biodegradable polymers on drug-eluting stents (DES) to potentially reduce stent-thrombosis risk: results from the ISAR-TEST-4 study found a novel rapamycin-coated stent with a disappearing polymer to be equally as effective as the Cypher and Xience (permanent-polymer) stents, with at least a signal of improved safety. Dr. Julinda Mehilli of Deutsches Herzzentrum in Munich, Germany presented 12-month results from the 2603-patient trial during a Hotline session at the European Society of Cardiology (ESC) 2009 Congress. Results were published online simultaneously in the European Heart Journal.

Drug-eluting stents (DES), which slowly release medication to inhibit the build-up of scar tissue, have proved very successful in preventing restenosis of stented coronary arteries. However, several studies have shown persistent risk of blood clot formation inside DES over a longer time period after implantation than observed with bare metal stents. Additionally, recent serial angiographic studies have reported that scar tissue accumulation can be seen up for up to two years after implantation of DES. There is increasing evidence that the risk of both late in-stent blood clot and neointimal scar formation may be caused by a delayed healing process or a persisting inflammatory response to the permanent polymer used to control drug-release from the surface of the stent.

The ISAR-TEST-4 study is a randomized trial designed and conducted at two tertiary referral cardiology centers - Deutsches Herzzentrum and 1. Medizinische Klinik, Klinikum rechts der Isar, Technische Universität, both in Munich, Germany - with the aim of assessing the efficacy and safety of a biodegradable polymer DES in a non-selected cohort of patients undergoing PCI in de novo native-vessel coronary lesions. First results indicate that safety and efficacy outcomes at one year are comparable with those of permanent polymer-based drug-eluting stents
Patients were randomly assigned to receive either a biodegradable polymer DES (n = 1299) or a permanent polymer DES (Cypher, n = 652, or Xience, n = 652). The primary endpoint was a composite of cardiac death, myocardial infarction (MI) related to the target vessel, or revascularization related to the target lesion (TLR) at one year.

The biodegradable polymer DES was developed in the setting of the Individualized Drug-Eluting Stent System to Abrogate Restenosis (ISAR) project. The stent platform consists of a sand-blasted, stainless-steel stent that is coated on-site with a mixture of rapamycin, biodegradable polymer, and shellac resin (a biocompatible resin widely used in the coating of medical tablets).

Primary endpoint results showed that the biodegradable polymer DES was non-inferior to the permanent polymer DES (a rate of 13.8% vs. 14.4%, relative risk 0.96, 95% CI 0.78-1.17, p-non-inferiority=0.005; p-superiority=0.66). No significant difference was observed between the biodegradable and permanent polymer DES according to cardiac death or MI (6.3% vs. 6.2%, P=0.94), TLR (8.8% vs. 9.4%, P=0.58) or stent thrombosis (definite/probable: 1.0% vs. 1.5%, P=0.29). Nor was there a significant difference in subgroup analysis of the biodegradable polymer DES versus the individual permanent polymer DES arms.

Investigator Dr. Julinda Mehilli from the Deutsches Herzzentrum in Munich said: "The one-year clinical efficacy of the biodegradable polymer rapamycin-eluting stent is comparable to permanent polymer-based DES. These results now provide a framework for testing the potential clinical advantage of biodegradable polymer DES over the medium- to long-term."

Conference News