ロスバスタチンは冠動脈内プラーク体積を縮小させる（Presentation #4949）

IBIS-4：STEMIを発症した患者において高用量ロスバスタチンは冠動脈プラークを退縮させる

IBIS-4: High-dose rosuvastatin reduces coronary plaque in patients who have had a STEMI

ST上昇心筋梗塞（STEMI）既往患者において1日40mgのロスバスタチンを1年間投与することにより、冠動脈内プラークが退縮し得る、との研究結果が2014年European Society of Cardiology Congressで発表され、同時に*The European Heart Journal*に掲載された。IBIS-4は責任病変の再開通に成功した急性STEMI患者103人を対象とした。患者はスタディ開始時および高用量ロスバスタチン治療13か月間の後に画像検査を施行され、非責任病変に対する薬物の影響を評価された。13か月後の血管内超音波検査では、85%の患者が少なくとも1本の冠動脈においてプラークの退縮を示し、56%は責任血管および非責任血管両者において退縮した。全体で、冠動脈内プラーク容積は平均0.9%（p=0.007）減少し、総粥腫容積の平均変化量は-13.7 mm^3（p=0.006）であった。プラーク容積の減少はベースラインのコレステロール値とは関係がなく、13か月間のコレステロール低下度に直接関係があった。高周波血管内超音波検査を用いたプラーク組織組成の解析の結果、壊死性コアに変化はなく"高リスクプラーク"の減少は認められなかった。予想されたように、ロスバスタチンはコレステロールレベルにも有益な効果を示した。

Full Text

One year of treatment with the highest dose of the cholesterol-lowering drug rosuvastatin can shrink plaque inside the arteries of patients who have had an ST-segment elevation myocardial infarction (STEMI), according to a new study presented at ESC Congress 2014.

Although STEMI patients undergo a revascularization procedure to unblock the "culprit" artery that caused their myocardial infarction (MI), they remain at increased risk for similar events due to plaque formation in other untreated coronary arteries.

The IBIS-4 study, which was published simultaneously in *The European Heart Journal* is the first to use ultrasound imaging inside coronary arteries both at the time of heart attack and after 13 months of treatment to show the benefit of high-dose statin therapy on plaque burden, said study investigator Lorenz Räber, M.D. an interventional cardiologist from Bern University Hospital in Bern, Switzerland.

The study was an investigator-initiated trial performed at five sites in Europe (University Hospitals of Bern (CH), Copenhagen (DK), Geneva (CH) and Zurich (CH) and Cardiocentro Lugano (CH)) with support from the Swiss National Science Foundation as well as a stent manufacturer (Biosensors SA) and an ultrasound imaging company (Volcano) but without support from a pharmaceutical cholesterol-lowering manufacturer.

"Previous work has shown that high-dose rosuvastatin can reduce plaque size in stable patients, but until now this has not been specifically investigated in arteries of patients with acute MIs, a setting known to harbor additional high risk plaques that can be the source for future cardiovascular events," said Dr. Räber. "Additionally, our study is the first to use intracoronary ultrasound to assess the actual plaque composition and the plaque phenotype, and to observe how both respond to treatment."

IBIS-4 included 103 acute heart attack patients who were first successfully treated to unblock the culprit vessel. Subjects then underwent imaging, both at the start of the study and then after 13 months of high-intensity rosuvastatin treatment, to assess the drug's impact on their non-culprit arteries.

Rosuvastatin was given at a dose of 40 mg daily. After 13 months, ultrasonography showed that 85% of patients had regression of plaque in at least one artery, and 56% had regression in both.

Overall, intracoronary plaque volume was reduced by a mean of -0.9% (p=0.007), with a mean change of the total atheroma volume of -13.7 mm^3 (p=0.006). Although the reduction in plaque volume was independent from cholesterol levels at baseline, it was directly related to the extent of cholesterol reduction at 13 months.

An analysis of the plaque tissue composition using radiofrequency intravascular ultrasonography showed no changes in the necrotic core and no reduction in "high risk plaques".

As expected, rosuvastatin also had beneficial effects on cholesterol levels. Low-density lipoprotein (LDL) cholesterol ("bad cholesterol") decreased from a median of 3.29 mmol/L at baseline to 1.89 mmol/L (p<0.001), corresponding to a 43% reduction. A total of 44% of patients achieved a guideline-recommended LDL level of less than 1.8mmol/L.

Professor Stephan Windecker, senior investigator of IBIS-4 at Bern University Hospital, Switzerland noted, "the beneficial effects of high-dose statin therapy on coronary plaque regression previously observed in patients with stable coronary artery disease can be extended to those at highest risk for cardiovascular complications, namely patients with acute heart attacks. This explains at least in part the clinical benefit of high-dose statin therapy in patients with MIs."

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