Updates

Rapid Journal Scan

From the Editorial desk

Alternate-day dosing of statins is as efficacious as daily dosing

Cardiovascular drugs Ther.2017 Jul

Awad K, et al. conducted a meta-analysis of RCTs and quasi-RCTs to synthesize evidence about the efficacy and safety of alternate-day vs daily dosing of statins. The study searched selected databases to identify relevant RCTs and quasi-RCTs. Twelve RCTs and 1 quasi-RCT (n = 1023 patients) were included in the analysis. The primary outcome was change in LDL-C, TC, and TG, while secondary outcomes included adverse events and adherence.

Results

Daily regimens of atorvastatin and rosuvastatin were superior to alternate-day regimes in term of change in TC (MD 12.45 mg/L, $p < 0.00001$, and 15.80 mg/dL, $p = 0.002$, respectively). For all outcomes, there was no statistically significant difference between alternate-day and daily regimens for both fluvastatin and pravastatin ($p > 0.05$). Both regimens of statins were generally well tolerated with good adherence.

Conclusion

Alternate-day dosing of individual statins (especially atorvastatin and rosuvastatin) is as efficacious as daily dosing on LDL-C and TG.

Subjects carrying non-O blood group have an increased risk of (nonfatal) CV events

European journal of heart failure 2017;19

It has been suggested that carriers of non-O blood groups (AB0 groups A, B, and AB) have higher CV risk, including risk for M1, stroke, heart failure and CV death. Kole TM, et al. conducted a meta-analysis of prospective studies to evaluate the assumption which showed a skewed blood group distribution in subjects with CV events.

The total number of subjects included in all studies was 1,362,569, and they experienced 23,154 CV events. Investigators performed a meta-analysis of prospective studies reporting on blood group and CV events. They searched for terms "ABO blood group" and "myocardial infarction, coronary artery disease, ischemic heart disease, heart failure, stroke, cardiovascular events, cardiovascular mortality and all-cause mortality", and initially retrieved 531 articles.

Results

The odds ratio's for subjects having non-O blood groups compared to O blood group for fatal coronary events, all coronary events and combined CV events were 1.00 (CI 0.85-1.18; p-value: 0.98), 1.09 (CI 1.06-1.13; p-value: <0.00001) and 1.09 (CI 1.06-1.11; p-value: 0.006), respectively. Several sensitivity analyses did not materially change the results.

Conclusion

Meta-analysis shows that subjects carrying non-O blood group have an increased risk of (nonfatal) CV events, especially myocardial infarction.

Updates

Ticagrelor plus aspirin for 1 month, followed by ticagrelor monotherapy for 23 months vs aspirin plus clopidogrel or ticagrelor for 12 months, followed by aspirin monotherapy for 12 months after implantation of a drug-eluting stent: a multicenter, open-label, randomized superiority trial

Lancet 2018;392:940-49 August 27

It was hypothesized that ticagrelor, in combination with aspirin for 1 month, followed by ticagrelor alone, improves outcomes after percutaneous coronary intervention compared with standard antiplatelet regimens.

GLOBAL LEADERS was a randomized, open-label superiority trial at 130 sites in 18 countries. Patients undergoing percutaneous coronary intervention with a biolimus A9-eluting stent for stable coronary artery disease or acute coronary syndromes, were randomly assigned (1:1) to 75–100 mg aspirin daily plus 90 mg ticagrelor twice daily for 1 month, followed by 23 months of ticagrelor monotherapy, or standard dual antiplatelet therapy with 75–100 mg aspirin daily plus either 75 mg clopidogrel daily (for patients with stable coronary artery disease) or 90 mg ticagrelor twice daily (for patients with acute coronary syndromes) for 12 months, followed by aspirin monotherapy for 12 months. The primary endpoint at 2 years was a composite of all-cause mortality or non-fatal centrally adjudicated new Q-wave myocardial infarction.

15 968 participants were randomly assigned, 7980 to the experimental group and 7988 to the control group. At 2 years, 304 (3·81%) participants in the experimental group had died or had a non-fatal centrally adjudicated new Q-wave myocardial infarction, compared with 349 (4·37%) participants in the control group (rate ratio 0·87 [95% CI 0·75–1·01]; p=0·073]).

There was no evidence for a difference in treatment effects for the primary endpoint across pre specified subgroups of acute coronary syndromes and stable coronary artery disease (p=0·93). Grade 3 or 5 bleeding occurred in 163 participants in the experimental group and 169 in the control group (2·04% vs 2·12%; rate ratio 0·97 [95% CI 0·78–1·20]; p=0·77).

Interpretation: Ticagrelor in combination with aspirin for 1 month followed by ticagrelor alone for 23 months was not superior to 12 months of standard dual antiplatelet therapy followed by 12 months of aspirin alone in the prevention of all-cause mortality or new Q-wave myocardial infarction 2 years after percutaneous coronary intervention.

Drug-coated balloons for small coronary artery disease (BASKET-SMALL 2): an open-label randomized non-inferiority trial

Lancet 2018 August

Drug-coated balloons (DCB) are a novel therapeutic strategy for small native coronary artery disease. However, their safety and efficacy is poorly defined in comparison with drug-eluting stents (DES).

BASKET-SMALL 2 was a multicenter, open-label, randomized non-inferiority trial. 758 patients with de-novo lesions (<3 mm in diameter) in coronary vessels and an indication for percutaneous coronary intervention were randomly allocated (1:1) to receive angioplasty with DCB versus implantation of a second-generation DES after successful predilatation. Dual antiplatelet therapy was given according to current guidelines.

382 patients were randomly assigned to the DCB group and 376 to DES group.

Interpretation:- In small native coronary artery disease, DCB was non-inferior to DES regarding MACE up to 12 months, with similar event rates for both treatment groups.

Ultrathin-strut, biodegradable-polymer, sirolimus-eluting stents versus thin-strut, durable-polymer, everolimus-eluting stents for percutaneous coronary revascularization: 5-year outcomes of the BIOSCIENCE randomized trial.

Lancet 2018 August

Drug-eluting stents combining an ultrathin cobalt-chromium stent platform with a biodegradable polymer eluting sirolimus have been shown to be non-inferior or superior to thin-strut, durable-polymer, everolimus-eluting stents in terms of 1 year safety and efficacy outcomes.

The randomized, single-blind, multicentre, non-inferiority BIOSCIENCE trial, compared biodegradable-polymer sirolimus-eluting stents with durable-polymer everolimus-eluting stents in patients with chronic stable coronary artery disease or acute coronary syndromes. The final 5-year clinical outcomes of BIOSCIENCE with regards to the primary clinical outcome of target lesion failure, which was a composite of cardiac death, target vessel myocardial infarction, and clinically indicated target lesion revascularization is reported here.

2119 patients, completed 5 years of follow-up. Target lesion failure occurred in 198 patients (cumulative incidence 20·2%) treated with biodegradable-polymer sirolimus-eluting stents and in 189 patients (18·8%) treated with durable-polymer everolimus-eluting stents. All-cause mortality was significantly higher in patients treated with biodegradable-polymer sirolimus-eluting stents than in those treated with durable-polymer everolimus-eluting stents driven by a difference in non-cardiovascular deaths. The study observed no difference between groups in cumulative incidence of definite stent thrombosis at 5 years.

Interpretation:- 5-year risk of target lesion failure among all-comer patients undergoing percutaneous coronary intervention is similar after implantation of ultrathin-strut, biodegradable-polymer, sirolimus-eluting stents or thin-strut, durable-polymer, everolimus-eluting stents.

Higher incidences of all-cause and non-cardiovascular mortality in patients treated with biodegradable-polymer stents eluting sirolimus than in those treated with durable-polymer stents eluting everolimus warrant careful observation in ongoing clinical trials.

Use of aspirin to reduce risk of initial vascular events in patients at moderate risk of cardiovascular disease (ARRIVE): a randomized, double-blind, placebo-controlled trial

Lancet 2018; 392: August 26

Background

The use of aspirin in the primary prevention of cardiovascular events remains controversial. The study aimed to assess the efficacy and safety of aspirin versus placebo in patients with a moderate estimated risk of a first cardiovascular event.

ARRIVE was a randomized, double-blind, placebo-controlled, multicenter study done in seven countries. Eligible patients were aged 55 years (men) or 60 years (women) or older and had an average cardiovascular risk deemed to be moderate on the basis of the number of specific risk factors. The primary efficacy endpoint was a composite outcome of time to first occurrence of cardiovascular death, myocardial infarction, unstable angina, stroke, or transient ischaemic attack. Safety endpoints were haemorrhagic events and incidence of other adverse events, and were analyzed.

Median follow-up was 60 months. In the intention-to-treat analysis, the primary endpoint occurred in 269 (4·29%) patients in the aspirin group versus 281 (4·48%) patients in the placebo group. Gastrointestinal bleeding events (mostly mild) occurred in 61 (0·97%) patients in the aspirin group versus 29 (0·46%) in the placebo group. The overall incidence rate of serious adverse events was similar in both treatment groups in the aspirin group vs n=1311 [20·89%] in the placebo group.

The overall incidence of adverse events was similar in both treatment groups (n=5142 [82·01%] vs n=5129 [81·72%] in the placebo group). The overall incidence of treatment-related adverse events was low (n=1050 [16·75%] vs n=850 [13·54%] in the placebo group; p<0·0001). There were 321 documented deaths in the intention-to-treat population (n=160 [2·55%] vs n=161 [2·57%] of 6276 patients in the placebo group).

Interpretation: - The event rate was much lower than expected, which is probably reflective of contemporary risk management strategies, making the study more representative of a low-risk population. The role of aspirin in primary prevention among patients at moderate risk could therefore not be addressed. Nonetheless, the findings with respect to aspirin's effects are consistent with those observed in the previously published low-risk primary prevention studies.

Aspirin for primary prevention of cardiovascular disease events in diabetes

ASCEND Study Collaborative Group, Bowman L

Although secondary prevention of ASCVD with aspirin is well established, the role of aspirin in primary prevention of ASCVD in patients with diabetes is less well established. In the ASCEND (A Study of Cardiovascular Events in Patients with Diabetes) study investigators randomized >15,000 adults who had diabetes but no cardiovascular disease to receive 100 mg aspirin or placebo. The primary outcome was the first serious vascular event (i.e. myocardial infarction, stroke or transient ischemic attack, or death from any vascular cause, other than intracranial haemorrhage).

After a mean follow up of 7.4 years, the primary outcome occurred in a lower proportion of those who received aspirin with a rate ratio of 0.88. Thus, usage of aspirin resulted in 12% lower risk of a serious cardiovascular event. However, there was a 28% higher risk of participants experiencing major bleeding. A total of 314 (4.1%) participants in the aspirin group experienced major bleeding compared to 245 (3.2%) in the placebo group.

Major bleeding was gastrointestinal (41.3%), ocular (21.1%), intracranial (17.2%) and 20.4% in other sites. The incidence of fatal bleeding was similar in both the groups.

Only 14% of the participants were on proton pump inhibitors (PPIs). It is possible that if more participants were on PPIs with aspirin the gastrointestinal bleeding episodes would have reduced.

Since bleeding events in the ASCEND trial were mostly nonfatal, low-dose aspirin (100 mg) as primary prevention will produce substantial clinical benefit, in reducing morbidity and mortality that accompanies an acute myocardial infarction or an acute stroke.

Anti-anginal drugs–beliefs and evidence: systematic review covering 50 years of medical treatment

European Heart Journal (2019)

Current guidelines recommend pharmacological therapy with drugs classified as being first line (beta blockers, calcium channel blockers, short acting nitrates) or second line (long-acting nitrates, ivabradine, nicorandil, ranolazine, and trimetazidine). Second line drugs are indicated for patients who have contraindications for first line agents, do not tolerate them or remain symptomatic. Evidence that one drug is superior to another has been questioned. A systematic review of articles written in English over the past 50 years was done. It included double blind randomized studies comparing parallel groups on treatment of angina in patients with stable coronary artery disease, with a sample size of, at least, 100 patients (50 patients per group), with a minimum follow-up of 1 week and an outcome measured on exercise testing, duration of exercise being the preferred outcome. Thirteen studies fulfilled their criteria. Evidence of equivalence was demonstrated for the use of beta-blockers (atenolol), calcium antagonists (amlodipine, nifedipine), and channel inhibitor (ivabradine) in three of these studies.

Taken all together, in none of the studies was there evidence that one drug was superior to another in the treatment of angina or to prolong total exercise duration. There is a paucity of data comparing the efficacy of anti-anginal agents. The little available evidence shows that no anti-anginal drug is superior to another and equivalence has been shown only for three classes of drugs. Guidelines draw conclusions not from evidence but from clinical beliefs!

Associations of egg consumption with cardio-vascular disease in a cohort study of 0.5 million Chinese adults

Heart 2018; 104

Objective- To examine the associations between egg consumption and cardiovascular disease (CVD), ischaemic heart disease (IHD), major coronary events (MCE), haemorrhagic stroke as well as ischaemic stroke.

Methods- During 2004–2008, over 0.5 million adults aged 30–79 years were recruited from 10 diverse survey sites in China.

Compared with non-consumers, daily egg consumption was associated with lower risk of CVD (HR 0.89, 95% CI 0.87 to 0.92).

There were significant dose-response relationships of egg consumption with morbidity of all CVD endpoints (P for linear trend <0.05).

Daily consumers also had an 18% lower risk of CVD death and a 28% lower risk of haemorrhagic stroke death compared to non-consumers.

Conclusion: Among Chinese adults, a moderate level of egg consumption (up to <1 egg/day) was significantly associated with lower risk of CVD, largely independent of other risk factors

Aspirin and Clopidogrel vs. Aspirin in Acute Minor Stroke or TIA

American College of Cardiology -Dec 21, 2018

Study Question

Do patients with acute noncardioembolic minor stroke do better on short-term aspirin monotherapy or short-term dual therapy with aspirin and clopidogrel?

Methods

This was a prospective registry-based observational study of consecutive acute stroke/transient ischemic attack (TIA) patients admitted to 15 academic hospitals in South Korea.

The primary outcome was the composite of ischemic stroke, hemorrhagic stroke, myocardial infarction, and vascular death at 3 months post-stroke.

A total of 5,590 patients met inclusion criteria. Patients in the clopidogrel-aspirin group were more likely to have had a previous stroke/TIA and to already be on an antiplatelet, antihypertensive, and/or statin.

After propensity score weighting, aspirin+clopidogrel therapy remained superior, with the primary outcome occurring 24% less frequently in the aspirin-clopidogrel group than in the aspirin-only group. Patients who were on an antiplatelet at the time of the index TIA/stroke seemed to benefit more from aspirin+clopidogrel therapy.

As in the recent randomized controlled CHANCE and POINT trials, patients with acute stroke/TIA in this observational study did better on short-term aspirin+clopidogrel therapy than short-term aspirin monotherapy.

Updates

DAPT and Outcome after LM Bifurcation PCI

American College of Cardiology -Dec 20, 2018

Study Question:

What are the clinical outcomes after left main coronary artery (LM) bifurcation percutaneous coronary intervention (PCI) and the impact of the duration of dual antiplatelet therapy (DAPT) according to treatment strategy?

This pooled analysis of large-scale multicenter studies reports that a sizeable portion of patients with LM bifurcation lesions require PCI with a two-stent strategy in real-world practice. However, the two stent strategy resulted in worse clinical outcomes compared with the one-stent strategy driven mainly by lesion complexity. Based on these data, interventionists, when faced with LM bifurcation lesions, need to be judicious in the decision to perform PCI, with coronary artery bypass grafting being the preferred option unless contraindicated. Moreover, when PCI with two stents is absolutely necessary or if the case ends up requiring a two-stent approach, maintenance of DAPT beyond 1 year may be important for outcome than in patients treated with one stent.

Low-Flow, Low-Gradient AS with Reduced LVEF (TOPAS-TAVI)

American College of Cardiology -Jan 02, 2019

Study Question:

What are the effects on clinical outcomes and left ventricular ejection fraction (LVEF) after transcatheter aortic valve replacement (TAVR) among patients with low-flow, low-gradient (LFLG) aortic stenosis (AS) and severe LV systolic dysfunction?

The LFLG AS was defined as a mean transvalvular gradient <35 mm Hg, an effective orifice area <1.0 cm2, and LVEF ≤40%.

Dobutamine stress echocardiography (DSE) was performed before TAVR in a subset with very low LVEF; the presence of contractile reserve was defined as a ≥20% increase in stroke volume.

The mean age was 80 ± 7 years. The mean LVEF in the very low LVEF group was 22 ± 5%, compared with 37 ± 7% in the low LVEF group ($p < 0.001$).

There were no significant differences between groups in the rates of periprocedural mortality.

Patients with very low LVEF had a greater increase in LVEF at the 1-year follow-up examination (mean absolute increase 11.9%; 95% CI, 8.8%-15.1%) than did the low LVEF group (3.6%; 95%). Among 92 patients with very low LVEF who underwent preprocedural DSE, there was a lack of contractile reserve in 45 (49%), but this had no relation to clinical outcomes or change over time in LVEF.

Patients with LFLG AS and severe LV systolic dysfunction who underwent TAVR had similar clinical outcomes compared to counterparts with milder LV dysfunction. The TAVR procedure was associated with a significant increase in LVEF regardless of contractile reserve. The authors concluded that these results support TAVR among patients with LFLG AS and reduced LVEF, regardless of the severity of LV dysfunction and DSE results.

DSE is an important tool to help distinguish severe from pseudosevere AS among patients with LFLG AS and reduced LVEF. Among patients undergoing surgical AVR, the absence of LV contractile reserve on preprocedural DSE portends high perioperative risk. However, these data suggest that patients with LFLG AS and LVEF <30% who undergo TAVR have similar periprocedural and ~2-year mortality compared to patients with LVEF 30-40%.

Iron Deficiency in Heart Failure

American College of Cardiology- Jan 02, 2019

Iron deficiency anemia is widely present in patients with heart failure with an estimated prevalence of over 50% in ambulatory patients. It is an independent predictor of worse functional capacity and survival.

Definition of iron deficiency in heart failure differs from other conditions of chronic inflammation and is defined as: ferritin <100 µg/dl or ferritin of 100-299 µg/dl with a transferrin saturation <20%.

At present, intravenous (IV) iron is the preferred route for treatment in heart failure patients. Most studies have used IV iron sucrose (maximum dose of 200 mg per setting) or ferric carboxymaltose (maximum dose of 1000 mg per week).

Multiple placebo-controlled, randomized clinical trials have been conducted with IV iron in patients with New York Heart Association class II-III heart failure with an ejection fraction ≤45% who met criteria for iron deficiency, regardless of whether anemia was present or not.

To date, no clinical trial has proven the efficacy of oral iron in patients with heart failure with reduced ejection fraction. Furthermore, oral iron preparations are associated with a high incidence of adverse effects (in up to 40% of patients), are poorly absorbed due to gut wall edema, and can take up to 6 months to replenish iron stores.

Mortality Reduction in Nonischemic Cardiomyopathy ICD Patients

American College of Cardiology Aug 23, 2018

Study Question:

Is a left ventricular scar (LVS) in patients with nonischemic cardiomyopathy (NICM) a predictor of improved survival after implantation of an implantable cardioverter-defibrillator (ICD)?

Results:

An ICD was implanted in 246 patients. LVS was present in 59% of patients. The median duration of follow-up was 37.9 months. There was not a significant difference in mortality at 3 years between the ICD group (11%) and the patients without an ICD (19%). After propensity matching, ICDs were not associated with a survival advantage and LVS was associated with a 71% higher risk of mortality. Among the patients without LVS, ICD implantation did not significantly affect mortality. Among the patients with LVS, ICD implantation was independently associated with a 55% reduction in the risk of death.

Conclusions:

The presence of LVS identifies patients with NICM who derive a survival benefit from implantation of an ICD for primary prevention of sudden cardiac death.

Non-ACS Troponin Elevation and Outcomes

American College of Cardiology Jan 07, 2019

Study Question:

Are elevations in cardiac troponin (cTn) levels not attributed to acute coronary syndromes (ACS) associated with poor outcomes in acutely admitted patients?

The authors queried the SWEDEHEART (Swedish Web-System for Enhancement and Development of Evidence-Based Care in Heart Disease Evaluated According to Recommended Therapies) registry, which routinely collects information on patients hospitalized for suspected acute coronary syndromes (ACS) in all Swedish hospitals. They identified 48,872 patients in whom cTn was measured.

Conclusions:

Elevated cTn is associated with increased risk of MAE, mortality, ACS, heart failure, or stroke even in patients with no evidence of coronary artery disease, heart failure, or kidney dysfunction.

Updates

Sleep Apnea and Blood Pressure Control among Blacks

American College of Cardiology - Dec 19, 2018

Study Question:

Is sleep apnea associated with uncontrolled blood pressure (BP) and resistant hypertension (HTN) in blacks?

Methods:

Data from the Jackson Heart Sleep Study were used for the present analysis.

Moderate or severe obstructive sleep apnea (OSA) was defined as a respiratory event index ≥15, and nocturnal hypoxemia was quantified as percent sleep time with <90% oxyhemoglobin saturation. Prevalent HTN was defined as either a systolic BP (SBP) ≥130 mm Hg or diastolic BP (DBP) >80 mm Hg, use of antihypertensive medication, or self-report of a diagnosis of HTN. Controlled BP was defined as SBP <130 mm Hg and DBP <80 mm Hg; and uncontrolled BP as SBP ≥130 mm Hg or DBP ≥80 mm Hg with use of 1-2 classes of antihypertensive medications. Resistant BP was defined as SBP ≥130 mm Hg or DBP ≥80 mm Hg with the use of ≥3 classes of antihypertensive medication (including a diuretic) or use of ≥4 classes of antihypertensive medication regardless of BP level. The primary outcomes of interest were uncontrolled BP and/or resistant HTN.

Results:

Approximately 25% of the cohort had OSA, of which most were untreated (94%). Overall, 48% of participants had uncontrolled HTN and 14% had resistant HTN. After adjustment for confounders, participants with moderate or severe OSA had a 2.0 times higher odds of resistant HTN (95% confidence interval [CI], 1.14–3.67).

Conclusions:

The study concluded that untreated moderate or severe OSA is associated with increased odds of resistant HTN. These results suggest that untreated OSA may contribute to inadequate BP control in blacks.

Transient ST-segment myocardial infarction: a new category of high risk acute coronary syndrome?

European Society of Cardiology- European Heart Journal (2019) doi:10.1093/eurheartj/ehy734
Brian A. Bergmark, David P. Faxon

What is the appropriate strategy for STEMI patients with spontaneous resolution of both symptoms and ST segment elevation, prior to reperfusion therapy, referred to as *transient STEMI?*

In Jan 2019 issue of the European Heart Journal, Lemkes and colleagues present results of the Timing of revascularization in patients with transient ST-segment elevation myocardial infarction (TRANSIENT) trial, the first randomized, controlled trial of an immediate vs. delayed invasive strategy in patients with transient STEMI.

Adult patients with an initial STEMI presentation, followed by complete resolution of symptoms and ST elevation, were randomized to an immediate angiography strategy vs. a guideline recommended strategy for NSTE-ACS with angiography within 24 h for patients with an elevated GRACE score (> 140) or within 72 h for lower-risk patients. The primary endpoint for this comparison was the size of myocardial infarction as a percentage of the left ventricular mass as measured by cardiac magnetic resonance (cMR) imaging on day four.

With respect to the primary endpoint, the infarct size was 1.3% of left ventricular mass in the immediate angiography group vs. 1.5% in the delayed group. Critically, this turned out to be a much smaller infarct size than anticipated (a mean infarct size of 10% in the immediate angiography group was assumed). The implication is that the study was therefore under-powered for the primary endpoint and needs to be interpreted in that context.

The safety of a delayed approach to angiography in this cohort remains in question, as there were trends toward larger infarcts and more frequent ischaemic events in this under-powered analysis in which non-inferiority was not tested.

Fractional flow reserve-guided percutaneous coronary intervention vs. medical therapy for patients with stable coronary lesions: meta-analysis of individual patient data

European Society of Cardiology- European Heart Journal (2019)
doi:10.1093/eurheartj/ehy812
Frederik M. Zimmermann

Aims

To assess the effect of fractional flow reserve (FFR)-guided percutaneous coronary intervention (PCI) with contemporary drug -eluting stents vs. medical therapy on the composite of cardiac death or myocardial infarction (MI) in patients with stable coronary lesions.

Methods and results

A systematic review and meta-analysis of the three available randomized trials of contemporary FFR-guided PCI vs. medical therapy for patients with stable coronary lesions: FAME 2, DANAMI-3-PRIMULT, and COMPARE-ACUTE. FAME 2 enrolled patients with stable coronary artery disease (CAD), while the other two focused on non-culprit lesions in stabilized patients after acute coronary syndromes. After a median follow-up of 35 months, a reduction in the composite of cardiac death or MI was observed with FFR-guided PCI as compared with medical therapy. The difference between groups was driven by MI.

Conclusion

Meta-analysis of the three available randomized controlled trials to date, FFR-guided PCI resulted in a reduction of the composite of cardiac death or MI compared with medical therapy.

Reducing Inflammation to Reduce Atherothrombotic Risk

American College of Cardiology - Dec 18, 2018

Inflammation, measured by high-sensitivity C-reactive protein (HS-CRP) or interleukin (IL)-6, is strongly associated with future vascular events.

The inflammatory biomarker HS-CRP predicts CV risk with a magnitude comparable to low-density lipoprotein (LDL) or high-density lipoprotein. IL-6 measurement is not clinically available.

The recent multicountry CANTOS (Canakinumab Anti-inflammatory Thrombosis Outcomes Study) showed for the first time that reducing inflammation by targeting IL-1 beta, reduces vascular events in proportion to HS- CRP reduction without lowering LDL cholesterol.

Clinicians should distinguish between patients with residual cholesterol risk and residual inflammatory risk.

Residual inflammatory risk, defined as HS-CRP level >2 mg/l despite aggressive LDL cholesterol lowering, is common even with LDL cholesterol levels as low as 20-30 mg/dl.

A simple method to predict long-term benefit with Canakinumab is to administer a single dose and then treat long-term only those whose HS-CRP reduced >50% or to <2 mg/l on treatment.

During canakinumab treatment, HS-CRP should be monitored because benefit tracks directly with level of HS-CRP reduction achieved.

The benefit of canakinumab is not established in acute coronary syndromes.

The authors affirm that “the inflammation hypothesis of atherothrombosis neither conflicts nor competes with the lipid hypothesis.”