Background: Myocardial necrosis (MI) after percutaneous coronary intervention (PCI) is associated with an increased incidence of late adverse outcomes. Methods: We examined the effect of systemic inflammation at baseline (white blood cell count [WBC]) on the incidence of MI (CHWb), a 5% upper limit of normal) after elective PCI among high-risk patients without recent acute coronary syndromes from the EPIC study (n = 880). Results: Overall, MI occurred in 146 (16.6%). The incidence of MI in the highest tertile (CT, >8,9, and 19.9%) was positively (p for trend 0.0009) [Figure]. A multivariable logistic regression model, increasing WBC count (OR for each 1000/L 1.136 (95% CI 1.049-1.231), p = 0.002) was independently associated with a higher risk of peri-procedural MI. Conclusion: Pre-procedure inflammatory state predisposes patients to peri-procedural MI. A randomized trial comparing immediate PCI versus PCI deferred for anti-inflammatory pre-treatment (e.g., statins) appears warranted.

Reduction of Restenosis in Percutaneous Coronary Interventions by Hyperbaric Oxygen Therapy

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Background: Hyperbaric Oxygen Therapy (HOT) is a potent modality in the management of slow healing wounds. Percutaneous Coronary Interventions (PCI) uniformly create microcirculation patterns by the disruptive effects of the interventional hardware. therapy tricking the normal vascular responses leading to restenosis. It is intriguing to postulate that early healing of these microvascular wounds by HOT may decrease restenosis. The following constitutes our interim comparison findings.

Methods: Of 66 patients initially enrolled, 25 were randomized to the HOT arm and 40 to the control group. The patients underwent PCI for unstable angina or acute myocardial infarction (MI). All patients received at least one stent. Patients in the HOT arm underwent 2 hyperbolic dives using the Sechrist 2500 Monoplace System (Sechrist Inds., Annaheim, CA) one dive 2 hours before or immediately after PCI, and the other within 16 hours of the first dive. Each dive consisted of 100% Oxygen at 2 bars for 90 minutes. Results: The primary endpoints consisted of major adverse cardiac events at 8 months (Table). Repeat coronary angiography was performed for chest pain or MI in 6 patients of the HOT arm and 8 of the control group. Angiographic restenosis in the target lesion was found in 7 of the control and 0 of the HOT arm (p = 0.007).

Conclusions: HOT is a safe and effective adjunct to PCI and is associated with a significant reduction in the restenosis rate. Furthermore, it substantially reduces recurrence of late angiinal symptoms.

1051-190 Preprocedure Inflammatory State Predicts Periprocedural Myocardial Infarction After Elective Percutaneous Coronary Intervention: An EPIC Substudy

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Background: Preliminary data suggest that systemic inflammation may influence the clinical course following percutaneous coronary intervention (PCI). The relationship between inflammation at baseline and peri-procedural myocardial infarction (MI) has not been well explored. Methods: We examined the effect of systemic inflammation at baseline (white blood cell count [WBC]) on the incidence of MI (CHWb, > 5% upper limit of normal) after elective PCI among high-risk patients without recent acute coronary syndromes from the EPIC study (n = 880). Results: Overall, MI occurred in 146 (16.6%). The incidence of MI in the highest tertile (CT, >8, 9, and 19.9%) was positively (p for trend 0.0009) [Figure]. A multivariable logistic regression model, increasing WBC count (OR for each 1000/L 1.136 (95% CI 1.049-1.231), p = 0.002) was independently associated with a higher risk of peri-procedural MI. Conclusion: Pre-procedure inflammatory state predisposes patients to peri-procedural MI. A randomized trial comparing immediate PCI versus PCI deferred for anti-inflammatory pre-treatment (e.g., statins) appears warranted.

1051-188 Distal Myocardial Protection With Intracoronary Propranolol During Percutaneous Coronary Intervention Is Widely Applicable

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Background: Myocardial necrosis (MI) after percutaneous coronary intervention (PCI) is associated with an increased incidence of late adverse outcomes. Methods: We conducted a prospective randomized, placebo-controlled trial in 150 PCI patients to determine whether intracoronary (IC) propranolol (0.1 mg/kg) decreases post-PCI MI and in which subgroups this effect occurs. Results: Post-PCI MI (OR-MB + upper limit of normal) developed in 17% of IC propranolol pts (13/75) and 36% of placebo pts (27/77) (p = 0.01). The figure shows that this effect is widely applicable including the subgroup receiving prophylactic GP IIB/IIA inhibitors (28% of pts) and chronic oral pro-PCI beta-blockers (64%). Factors associated with decreased risk of MI were IC propranolol (OR: 0.40, CI: 0.17-0.91, p = 0.03) and prophylactic GP IIB/IIA use (OR: 0.41, CI: 0.14-1.08, p = 0.06). IC propranolol decreased MI in GP IIB/IIA pts (78%, 11/14) and pts on chronic beta-blockers (16% vs. 33%). Factors associated with increased MI were age >60 years and mechanical complications during PCI. IC propranolol decreased MI risk in older pts (16% vs. 44%) and in patients with mechanical complications (41% vs. 61%). Conclusion: These data suggest that in patients undergoing PCI, the smoker's paradox is associated with an increased incidence of late adverse outcomes.

ABSTRACTS - Angiography & Interventional Cardiology 17A

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Adenosine (ADO), used for diagnostic purposes, is supposed to exhaust myocardial resistance (MR). In patients (pts) with coronary artery disease, alpha vasomotor tone is enhanced and ADO might fail to reach minimal MR.

To determine the presence of clinically relevant residual MR after ADO administration.

Fractional flow reserve (FFR) allows assessment of residual MR, which is a major determinant of restenosis and clinical outcome. A minimal FFR <0.75 is considered to indicate a potentially relevant residual MR.

We studied the impact of alpha-agonists, aminophylline (AMPH), and urapidil (URA) in reducing residual MR during PCI.

Methods: In 140 pts undergoing PCI, we studied the effect of adenosine (ADO), aminophylline (AMP), and urapidil (URA) on residual MR in the EPIC study.

Results: Preprocedural FFR was 0.79 (0.09) in the control group and 0.78 (0.09) in the ADO group. Preprocedural AMPH (1051-189) was given in 10% of the patients in the control group and 50% of the patients in the AMPH group. A small decrease in MR was observed in the ADO group, whereas AMPH and URA did not alter MR.

In the diagnostic setting, when given on top of ADO, AMPH (but not URA) induces a limited further decrease in MR. Yet this changed the clinical decision in only 7% of pts.

Substudy

Percutaneous Coronary intervention: An EPIC Substudy

Emanuele Barbato, Wilbert Aronow, Joelle Bartunek, Stefan Carrier, Marc Vanderheyden, William Williams, Guy R. Heyndrickx, Nico H. Pils, Bernard De Bruyne, Cardiovascular Center OLVZ, Aalst, Belgium, Catharina Hospital, Eindhoven, The Netherlands

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