Brain Natriuretic Peptide Is Increased in Patients With Renal Artery Stenosis and It Significantly Decreases After Endovascular Stenting


Background. Experimental studies in animals have shown that angiotensin II stimulates the release of brain natriuretic peptide (BNP) through a direct mechanism, independent of mechanical stretching. We hypothesized that BNP may be increased in patients with renal artery stenosis (RAS), a condition that leads to release of angiotensin II.

Methods. We measured BNP in 17 patients with refractory hypertension and significant renal artery stenosis one week prior (n=13), one day prior (n=17), one day after (n=17), and one week (n=14) after successful renal artery stent placement. Compared to baseline, BNP dropped significantly (356 ± 382 vs 158 ± 143 pg/ml; p=0.009) within 24 hours of the successful renal stent procedure. Coincident with fall in BNP, the systolic blood pressure also decreased from 172 ± 16 mmHg to 134 ± 22 mmHg (p=0.0001).

Conclusion. BNP is increased in patients with significant RAS and decreases after successful renal stent placement. This finding may have important clinical implications in the future, such as helping to select which patients are most likely to respond to intervention.

877-5

Short-Term Outcomes of Carotid Stenting in Low and High Surgical Risk Patients


Background: Recent studies has shown that compared to endarterectomy surgery, carotid stenting (CS) has superior short-term outcomes in patients (pts) that are at high surgical risk (HR). It is not clear however, whether low surgical risk (LR) pts are also at lower CS risk. We compared short-term outcomes of CS in HR vs. LR pts.

Methods: All CS (p=0.00-303) performed with distal protection devices were analyzed. HR factors included: age > 60y, prior ipsilateral endarterectomy surgery, prior neck surgery or radiation, contralateral occlusion, anatomic low or high lesion, and unstable/severe heart disease. Pts were prospectively followed for 30 days.

Results: CS with embolic protection was performed in 588 arteries: 326 (55%) were found to be at LR, and 262 (45%) at LR. Comparing the two groups, baseline characteristics were similar except for the high risk features. HR pts were older (76 vs 69, p<0.001), since 43% of them were > 80y. HR and LR pts had similar success rate of distal protection device deployment (98% both), and stent placement (98% vs. 100%, p=ns). The 30-day outcomes are shown in the Table.

Conclusions: (1) Carotid stenting with distal embolic protection has favorable low event rate, especially in low surgical risk patients. (2) Compared to high surgical risk pts, low surgical risk patients have a trend toward lower short-term major event rate after carotid stenting, but the differences did not reach statistical significance. (3) Carotid stenting should not be limited to patients at high surgical risk.
Table 1

<table>
<thead>
<tr>
<th>CRP</th>
<th>IL-6</th>
<th>IL-1RA</th>
<th>sCD40L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-PCI</td>
<td>8.4±14</td>
<td>6.9±10</td>
<td>545±278</td>
</tr>
<tr>
<td>10 Minutes Post PCI</td>
<td>8.9±13</td>
<td>7.8±11</td>
<td>594±421</td>
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<tr>
<td>P Value</td>
<td>0.82</td>
<td>0.60</td>
<td>0.45</td>
</tr>
</tbody>
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10:45 a.m.

878-2

Oral Rapamycin in Patients Undergoing Coronary Stent Therapy: Final Results of the ORAR Study (Oral Rapamycin in Argentina)

Alfredo E. Rodriguez, Máximo Rodríguez Alemarte, Carlos Fernandez Pereira, César F. Vigo, Claudio Llauradó, Rubén Poropoli, David Vetcher, Onati Hospital, Buenos Aires, Argentina, Argentine Society for Cardiac Intervention, Buenos Aires, Argentina

Background: We previously reported (ACC03) preliminary findings of this study suggesting that high concentration of rapamycin blood level (>8 ng/ml) is associated with a trend to low late loss and restenosis rate in patients(pts) undergoing coronary stent therapy.

Methods: From December 2001 to February 2003, 76 pts with 103 arteries treated with stents were included in phase I (34 pts/49 arteries) and phase II (42 pts/54 arteries) of the ORAR study. A loading dose of 6 mg of oral rapamycin was administered immediately after stent deployment in all pts. In Phase I, 2 mg of oral rapamycin was given daily during 28 days. In Phase II 3 mg daily of rapamycin was given plus 160 mg of Clopidogrel during 28 days. Rapamycin blood levels were measured at third week in all pts. Cholesterol and triglycerides were evaluated before and after one month of treatment. Statins were given as well clopidogrel in all pts during six months. Angiographic binary restenosis, late loss, target lesion revascularization, treatment compliance, side effects and optimal concentration of the drug were analyzed. At the present time 6 month angiographic follow up data were available in 82.5% of the arteries.

Results: Baseline clinical characteristics showed diabetes 25.2%, type B1, B2 and C lesions in 81%, reference vessel size <2.9 mm in 37% and with a lesion length of 11.1 ± 0.8 mm. Minor side effects were present in 25% of the patients but only three discontinue the treatment (4%). Follow up quantitative angiographic data showed that pts having ≥8 ng/ml had lower late loss (0.65 mm vs. 1.11 mm respectively p = 0.031), binary in stent restenosis (6.2% vs 23.2% respectively p = 0.039) and better MLD (2.16 mm vs 1.71 mm respectively p = 0.007). Pearson test showed strong correlation between blood level of the drug and late loss (r = 0.001) Minor adverse side effects had a trend to increased with high blood concentration of the drug (p=0.083).

Conclusions: Oral rapamycin after coronary stent deployment in those pts who reached high concentration of the drug are associated with low late loss, binary restenosis and target lesion revascularization, treatment compliance, side effects and optimal concentration of the drug were analyzed. At the present time 6 month angiographic follow up data were available in 82.5% of the arteries.

11:00 a.m.

878-3

Subgroup Analysis of the Impact of the Glycoprotein IIb/IIIa Inhibitor Abciximab in Patients Undergoing Elective Stent Placement >2 Hours After Treatment With a 600 Milligram Loading Dose of Clopidogrel: Results From the ISAR REACT Trial


ISAR REACT was designed to evaluate whether the glycoprotein IIb/IIIa inhibitor abciximab is associated with a trend to low late loss and restenosis rate in patients(pts) undergoing coronary stent therapy.

Methods: From December 2001 to February 2003, 76 pts with 103 arteries treated with stents were included in phase I (34 pts/49 arteries) and phase II (42 pts/54 arteries) of the ORAR study. A loading dose of 6 mg of oral rapamycin was administered immediately after stent deployment in all pts. In Phase I, 2 mg of oral rapamycin was given daily during 28 days. In Phase II 3 mg daily of rapamycin was given plus 160 mg of Clopidogrel during 28 days. Rapamycin blood levels were measured at third week in all pts. Cholesterol and triglycerides were evaluated before and after one month of treatment. Statins were given as well clopidogrel in all pts during six months. Angiographic binary restenosis, late loss, target lesion revascularization, treatment compliance, side effects and optimal concentration of the drug were analyzed. At the present time 6 month angiographic follow up data were available in 82.5% of the arteries.

Results: Baseline clinical characteristics showed diabetes 25.2%, type B1, B2 and C lesions in 81%, reference vessel size <2.9 mm in 37% and with a lesion length of 11.1 ± 0.8 mm. Minor side effects were present in 25% of the patients but only three discontinue the treatment (4%). Follow up quantitative angiographic data showed that pts having ≥8 ng/ml had lower late loss (0.65 mm vs. 1.11 mm respectively p = 0.031), binary in stent restenosis (6.2% vs 23.2% respectively p = 0.039) and better MLD (2.16 mm vs 1.71 mm respectively p = 0.007). Pearson test showed strong correlation between blood level of the drug and late loss (r = 0.001) Minor adverse side effects had a trend to increased with high blood concentration of the drug (p=0.083).

Conclusions: Oral rapamycin after coronary stent deployment in those pts who reached high concentration of the drug are associated with low late loss, binary restenosis and better MLD in the follow up angiogram. A randomized drug / placebo study is ongoing (ORAR II).

11:00 a.m.

878-4

Qualitative and Quantitative Analysis of Saphenous Vein Graft Plaque Debris Within the MedNova CardioShield™ Embolic Capture Device

David R. Holmes, Jr., on behalf of the CAPTIVE Pivotal Study Investigators, Deena Weber, Frank Kolodge, Renu Virmani, Mayo Clinic, Rochester, MN, Armed Forces Institute of Pathology, Washington, DC

Background: There is limited information on the composition of atheroembolic debris released during stent treatment of diseased aorto-coronary bypass saphenous vein grafts (SVG). Intravascular filtration systems provide a unique opportunity to analyze plague debris captured following SVG intervention.

Device Description: The CardioShield embolic capture device consists of a polyurethane membrane having 140 micron distal perforation holes, two proximal entry ports, and an internal self-expanding nitinol support system. The filter is delivered over a pre-placed 0.014” filter delivery wire, allowing independent wire movement, and is deployed distal to the SVG lesion. Following stenting, the filter is removed using a retrieval catheter system.

Methods: One-hundred sixteen (116) filter devices utilized during stent treatment of 113 SVG lesions were submitted for histologic and morphometric analysis. Filter contents were removed, embedded, and microscopically evaluated to establish a profile of the contained embolic debris.

Results: Atheroembolic debris was collected in 95 (82%) of the 116 devices. In the devices containing debris, 72 (76%) demonstrated macrophage foam cells, 46 (48%) had smooth muscle cells, and 85 (90%) had necrotic core. Other identified debris included platelet/fibrin in 89 (94%), cholesterol clefts in 56 (59%), and collagen/elastic in 51 (54%). Use of a platelet glycoprotein IIb/IIIa inhibitor did not affect a difference in frequency, amount or composition of embolic debris. Morphometric measurements on 1,193 particles averaged an average particle size of 0.11 mm2 and minimal/maximal areas of 0.02 mm2 and 0.50 mm2, respectively. The area of the largest particle was 3.47 mm2.

Conclusion: During treatment of SVG disease, embolic debris is frequently liberated and seen in the majority of patients. The debris typically consists of necrotic core, macrophage foam cells, and platelet/fibrin aggregates. This filter system is effective at capturing released embolic particles of variable size and composition.

11:30 a.m.