Benefits of Perioperative STATINS in Improving Outcomes & Decreasing Adverse Events after AAA And Carotid Procedures-Endo And Open

Optimal Timing, Drug And Dosage

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FINANCIAL DISCLOSURE

I Have No Financial Relationships to Disclose

STATINS

Benefits in the Vascular Patient Population

- Reduce AAA Perioperative Cardiovascular Morbidity
- Renal-Protective During Aortic Surgery
- Slow AAA Growth
- Improve Claudication Distance
- 1st & 2nd Stroke Prevention
- Reduce CEA Periop Strokes / Death
- Reduce Carotid Stent Procedure Strokes
- Reduced Carotid Restenosis
- Improved Infrainguinal Bypass Patency
- Reduced Post-PTA/Stent Restenosis
- Reduce Venous Thrombosis

Erasmus Medical Center, Rotterdam
Eur J Vasc Endovasc Surg, 2004
Am J Cardiol, 2006

Patients: 570
Perioperative Mortality or MI: 51 (8.9%)

<table>
<thead>
<tr>
<th>Statin (+)</th>
<th>Statin (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (Yrs)</td>
<td>68</td>
</tr>
<tr>
<td>Cholesterol (mg/dl)</td>
<td>205</td>
</tr>
<tr>
<td>Hypertension</td>
<td>36%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4%</td>
</tr>
<tr>
<td>B-blockers</td>
<td>68%</td>
</tr>
<tr>
<td>Supra-Renal X-Clamp</td>
<td>32%</td>
</tr>
<tr>
<td>X-clamp time (x min)</td>
<td>47</td>
</tr>
<tr>
<td>Total surgery time (x min)</td>
<td>250</td>
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</tbody>
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Statins Adjusted OR: 0.24, 95% CI: 0.10-0.70; p= 0.01

Erasmus Medical Center, Rotterdam
Eur J Vasc Endovasc Surg, 2004
Patients: 77
  Statins: 28
  No Statins: 49

Supra-Renal X-Clamp

Patients: 77
  Statins: 28
  No Statins: 49

Dialysis: 7

Statins          No Statins         p
(n= 9,913: 50.3%)        (n= 9,410: 49.7%)

Hospital
1.0%                 1.45%               .01

30-Day
1.51%                2.3%                .0004

90-Day
3.05%                4.66%             <.0001

1-Year
7.91%                11.56%           <.0001

Effect on AAA Growth

Effect on AAA Growth

CEA: INFLUENCE OF STATINS
- Johns Hopkins (1994 – 2004) -

30-DAY RESULTS

* STATINS         NO STATINS              p
(n=657)                      (n=999)

* STROKE          1.2%                    4.5%                   .002

* MORTALITY       0.3%                    2.1%                   .002

STATINS:

- Reduced the Odds of Stroke: 3-Fold (p= .019)
- Reduced the Odds of Death: 5-Fold (p= .049)

CEA: INFLUENCE OF STATINS
- Johns Hopkins (1994 – 2004) -

<table>
<thead>
<tr>
<th></th>
<th>Symptomatic</th>
<th>Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statins</td>
<td>No Statins</td>
</tr>
<tr>
<td>Mortality</td>
<td>0.4%</td>
<td>1.2%</td>
</tr>
<tr>
<td>* Stroke / Mortality</td>
<td>2.5%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

|                  | Statins     | No Statins   |
| Mortality        | 0.6%        | 1.0%         | 0.53   |
| Stroke / Mortality | 2.6%      | 2.8%         | 0.52   |
Patients: 334
Mean age: 70 yrs
Asx: 20%

Patients: 1,853
CEAs: 2,127
> 70% Restenosis: 8.5% (5 Yrs)
3.9% (2 Yrs)

Statins: OR .589, p= 0.002

Statin Therapy for Primary Prevention

2013 ACC/AHA Clinical Risk Categories

RISK CLASS

- ASCVD:
- LDL > 190mg/dL:
- Diabetics: 40 – 75 Years, LDL 70-189 mg/dL:
- 10-Year Cardiovascular Risk > 7.5%, LDL: 70-189 mg/dL:

THERAPY

- High Intensity Rx
- High Intensity Rx
- High Intensity / Moderate Intensity Rx
- Moderate Intensity Rx

DRUGS & DOSAGE

HIGH INTENSITY Rx
Atorvastatin 80 mg (40 mg)
Rosuvastatin 20 mg (40 mg)

MODERATE INTENSITY Rx
Atorvastatin 10mg (20mg)
Rosuvastatin 10 mg (20 mg)
Simvastatin 20-40 mg
Pravastatin 40 mg (80 mg)
Lovastatin 40 mg
Fluvastatin XL 40 mg
Fluvastatin 40 mg BID
Pitavastatin 2-4 mg

SUMMARY

Benefits of Statins

AAA Patients:
- Reduce Rate of Perioperative M.I. & Mortality
- Renal Protective: AAA Surgery
- Slower AAA Growth

Carotid Patients:
- Reduced Rate of CEA Perioperative Stroke/ Death
- Reduced Rate of CAS Peri-Procedural Stroke
- Reduced Restenosis: CEA