Is the TAXUS Stent Benefit Extended to the Most Complicated Patients and Lesions?

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Stanford University, School of Medicine, CA, USA
DES Clinical Trial Programs

- Single and Multicenter Registries
- Megatrials
- Cypher vs. Taxus Studies
- Complex Patient and Lesion Studies
- Endovascular Studies
- Drug Dose and Stent Design Studies

Pivotal & Core Studies
- safety
- efficacy
- durability

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## TAXUS Clinical Development

**Increasing complexity**

<table>
<thead>
<tr>
<th></th>
<th>Stent Diameter</th>
<th>Lesion Length</th>
<th>Lesions</th>
<th>Vessels</th>
<th>Dose Formulation</th>
</tr>
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<tbody>
<tr>
<td>TAXUS I</td>
<td>3.0-3.5 mm</td>
<td>10-12 mm</td>
<td>single</td>
<td>1 non-TV</td>
<td>0</td>
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<td>TAXUS II</td>
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<tr>
<td>TAXUS III-ISR</td>
<td>3.0-3.5 mm</td>
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<td>TAXUS V</td>
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# TAXUS Program

## Clinical strategy

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- **Feasibility & Safety**
- **Efficacy**
- **Pivotal**
- **Indication Expansion**
Complex Lesions

- Long Lesions
- Small vessels
- Multiple Stenting
- Chronic Total Occlusions
- Unprotected left mains
- Bifurcations
- ...

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Complex Lesions

- Long Lesions
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- Unprotected left mains
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- ...
TAXUS VI: International Long Lesion Study

Mean lesion length (mm)
Complex Lesions & Procedures

% of Patients
N=446

- Long Lesions (≥ 26 mm): 18.6%
- Small Vessels (RVD < 2.5 mm): 27.8%
- Multiple Overlapping Stents: 27.8%
- Additional intervention in Non-target vessel: 23.5%
Long Lesions in TAXUS VI

Randomized
N=446

Lesion Length < 26 mm
N=360*

Control
N=188
TAXUS MR
N=172

Lesion Length ≥ 26 mm
N=83*

Control
N=38
TAXUS MR
N=45

*Patients with 12-month follow-up
Impact of Lesion Length on TLR (12 Months)

- **Lesion length <26 mm**
  - Control: 18.9% (35/185)
  - TAXUS MR: 9.9% (17/171)
  - P-value: 0.02

- **Lesion length ≥26 mm**
  - Control: 27.0% (10/37)
  - TAXUS MR: 4.4% (2/45)
  - P-value: 0.005

TLR rate (%)
Small Vessels in TAXUS VI

Randomized
N=446

RVD <2.5 mm
N=124*

Control
N=64

TAXUS MR
N=60

RVD ≥2.5 mm
N=322*

Control
N=163

TAXUS MR
N=159

*Patients with 12-month follow-up
Impact of Vessel Size on TLR (12 Months)

- **Control**
  - RVD < 2.5 mm: 30.6% (19/62), P = 0.0003
  - RVD ≥ 2.5 mm: 5.0% (3/60), P = 0.10

- **TAXUS MR**
  - RVD < 2.5 mm: 30.6% (19/62), P = 0.0003
  - RVD ≥ 2.5 mm: 16.8% (27/161)
Multiple Overlapping Stents in TAXUS VI

Randomized N=446

Single Stents N=274*
- Control N=140
- TAXUS MR N=134

Multiple Stents N=166*
- Overlapping Stents N=124*
- Control N=61
- TAXUS MR N=63

*Patients with 12-month follow-up
TLR with Overlapping Stents

Control  TAXUS MR

P=0.0002

23.3 %  93%

14/60  1/63

1.6 %
Multi-Vessel Procedures

Randomized
N=446

Only Target vessel treatment
N=341

Control
N=173
TAXUS MR
N=168

Non-Target Vessel Treated
N=105*

Control
N=54
TAXUS MR
N=51

*Patients with 12-month follow-up
TLR in Patients with Non-Target Vessel Treated

Control

TAXUS MR

26.4%
P=0.04

14/53

63%

5/51

9.8%
## 12-Month TLR: Subset Summary

<table>
<thead>
<tr>
<th>Subset</th>
<th>RR (95% CI)</th>
<th>RR (95% CI)</th>
<th>RR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>0.42 (0.37, 0.48)</td>
<td>8.7 (8.3, 9.1)</td>
<td>20.6 (19.9, 21.3)</td>
<td>0.0004</td>
</tr>
<tr>
<td>Lesion length (\geq 26) mm</td>
<td>0.16 (0.09, 0.22)</td>
<td>27.0 (25.9, 28.0)</td>
<td>4.4 (3.9, 4.9)</td>
<td>0.005</td>
</tr>
<tr>
<td>RVD &lt; 2.5 mm</td>
<td>0.16 (0.09, 0.22)</td>
<td>30.6 (30.1, 31.1)</td>
<td>5.0 (4.5, 5.5)</td>
<td>0.0003</td>
</tr>
<tr>
<td>Multiple overlapping stents</td>
<td>0.07 (0.03, 0.11)</td>
<td>23.3 (22.7, 23.9)</td>
<td>1.6 (1.3, 1.9)</td>
<td>0.0002</td>
</tr>
<tr>
<td>Non-target vessel treated</td>
<td>0.37 (0.32, 0.43)</td>
<td>26.4 (25.9, 26.8)</td>
<td>9.8 (9.2, 10.3)</td>
<td>0.04</td>
</tr>
</tbody>
</table>
TLR Independent of Classic Risk Factors

<table>
<thead>
<tr>
<th>Category</th>
<th>Control</th>
<th>TAXUS MR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long lesions ≥26mm</td>
<td>27.0</td>
<td>4.4</td>
<td>0.005</td>
</tr>
<tr>
<td>Small vessels &lt;2.5mm</td>
<td>30.6</td>
<td>5.0</td>
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TLR (%) for different lesion types and vessel treatments.
TAXUS VI Summary

*TAXUS benefit in TAXUS VI trial is independent of classic risk factors*

TLR reductions in...

- Long lesions: 84%
- Small vessels: 84%
- Overlapping stents: 93%
- Multivessel procedures: 63%
# Siegburg Taxus ISR Registry

94 patients with 104 lesions over a 12 months period

<table>
<thead>
<tr>
<th>Type of stent used in previous intervention</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare metal stent</td>
<td>89 (85.6%)</td>
</tr>
<tr>
<td>Drug-eluting stents</td>
<td>15 (14.4%)</td>
</tr>
<tr>
<td>Paclitaxel-eluting</td>
<td>9</td>
</tr>
<tr>
<td>Tacrolimus-eluting</td>
<td>5</td>
</tr>
<tr>
<td>Everolimus-eluting</td>
<td>1</td>
</tr>
</tbody>
</table>
### Siegburg Taxus ISR Registry

#### 6-MONTH CLINICAL FOLLOW-UP (n=94 pts)

<table>
<thead>
<tr>
<th>Event</th>
<th>Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target lesion revascularization, n (%)</td>
<td>7 (7.4%)</td>
</tr>
<tr>
<td>PCI with DES</td>
<td>3 (3.2%)</td>
</tr>
<tr>
<td>PCI with balloon angioplasty</td>
<td>2 (2.1%)</td>
</tr>
<tr>
<td>CABG</td>
<td>1 (1.1%)</td>
</tr>
<tr>
<td>Brachytherapy</td>
<td>1 (1.1%)</td>
</tr>
<tr>
<td>Stent thrombosis, n (%)</td>
<td>1 (1.1%)</td>
</tr>
<tr>
<td>Myocardial infarction, n</td>
<td>0</td>
</tr>
<tr>
<td>Death, n</td>
<td>0</td>
</tr>
</tbody>
</table>
### Siegburg Taxus ISR Registry

**6-MONTH FOLLOW-UP (n=104 lesions)**

<table>
<thead>
<tr>
<th>Late loss, mm</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>proximal</td>
<td>0.35 ± 0.65</td>
<td></td>
</tr>
<tr>
<td>in-stent</td>
<td>0.30 ± 0.50</td>
<td></td>
</tr>
<tr>
<td>distal</td>
<td>0.09 ± 0.66</td>
<td></td>
</tr>
<tr>
<td>in-segment</td>
<td>0.49 ± 0.61</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Binary restenosis, n (%)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>proximal</td>
<td>5 (4.8%)</td>
<td></td>
</tr>
<tr>
<td>in-stent</td>
<td>4 (3.8%)</td>
<td></td>
</tr>
<tr>
<td>distal</td>
<td>4 (3.8%)</td>
<td></td>
</tr>
<tr>
<td>in-segment</td>
<td>8 (7.6%)</td>
<td></td>
</tr>
</tbody>
</table>
Siegburg Taxus ISR Registry
PATTERN OF IN-STENT RESTENOSIS, n (%)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>PRE</th>
<th>6-m FU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mehran I (Focal)</td>
<td>34 (32.7%)</td>
<td>4 (3.8%)</td>
</tr>
<tr>
<td>Mehran II (Diffuse intra-stent)</td>
<td>50 (48.1%)</td>
<td>0</td>
</tr>
<tr>
<td>Mehran III (Diffuse proliferative)</td>
<td>15 (14.4%)</td>
<td>2 (1.9%)</td>
</tr>
<tr>
<td>Mehran IV (Total occlusion)</td>
<td>5 (4.8%)</td>
<td>2 (1.9%)</td>
</tr>
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</table>
Conclusions

• Efficacy of the TAXUS stent in the overall is extended to patients with classic risk factors for restenosis

• Larger studies are needed to prospectively evaluate contemporary DES use in high-risk cases