Interventional cardiology (IC) certification

Foreign vs. domestic graduate

Number of publications

Age

Sex

Multivariable hierarchical logistic regression modeling

Excluded radial artery approach PCI cases

Examined 145 physicians’ changes in bivalirudin use in 9,383 pre-PCI bleeding risk

Pre/Post comparison of DST effect on bivalirudin use as a function of pre-PCI bleeding risk

That provides personalized bleeding risk estimates prior to PCI

In patients undergoing percutaneous coronary intervention (PCI), bivalirudin is:

Effective as a bleeding avoidance strategy (BAS)

More beneficial in patients at high risk for bleeding

Paradoxically used more often in low-risk patients

We examined physicians' changes in bivalirudin use after providing patient-specific bleeding risk estimates at the time of PCI

METHODS

Data obtained from 9-center OPS/PRISM study of novel software that provides personalized bleeding risk estimates prior to PCI

Pre/Post comparison of DST effect on bivalirudin use as a function of pre-PCI bleeding risk

Examined 145 physicians’ changes in bivalirudin use in 9,383 propensity-matched patients

Excluded radial artery approach PCI cases

Multivariable hierarchical logistic regression modeling

Examined physician characteristics for association with bivalirudin use patterns:

Age

Sex

Foreign vs. domestic graduate

Number of publications

Interventional cardiology (IC) certification

RESULTS

Overall, bivalirudin use increased after DST implementation (Table 1)

Marked variability was observed in both:

— Physicians’ bivalirudin use as a function of bleeding risk, both before and after DST (Figure 1)

— Changes in physicians’ bivalirudin use after DST (Figure 2)

Overall use (OR Range 0.21-9.34; p 0.0006)

Use per 1% increase in bleeding risk (OR Range 0.34-1.78; p 0.02)

In adjusted analyses, IC certification was significantly associated with greater bivalirudin use after DST, but this use was paradoxically increased most in the lowest risk patients, not the highest (Figure 3)

Table 1: Bivalirudin Use by Bleeding Risk Pre- & Post-DST

<table>
<thead>
<tr>
<th></th>
<th>Pre-DST Rate</th>
<th>Post-DST Rate</th>
<th>Odds Ratio (95% CI)</th>
<th>p-value</th>
<th>DST x Risk Interaction p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>47.0%</td>
<td>52.4%</td>
<td>1.24 (1.02, 1.51)</td>
<td>0.03</td>
<td>0.02</td>
</tr>
<tr>
<td>By bleeding risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>48.1%</td>
<td>46.7%</td>
<td>0.94 (0.71, 1.25)</td>
<td>0.68</td>
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<tr>
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CONCLUSION

• Small sample size precludes ability to significantly associate physician bivalirudin practice patterns with bleeding outcomes

• Physician beliefs regarding efficacy of bivalirudin as a BAS represent one unknown confounder

• Other BAS (radial PCI, vascular closure device) not included in analysis

• Marked variability exists in physicians’ use of best practices in decision-making after exposure to an evidence-based DST

• Further exploration of physician barriers to DST use may identify ways to foster safer, more effective patient care

LIMITATIONS

• Little is known about how physicians respond to and use DSTs to improve treatment and outcomes

• In patients undergoing percutaneous coronary intervention (PCI), bivalirudin is:

— Effective as a bleeding avoidance strategy (BAS)

— More beneficial in patients at high risk for bleeding

— Paradoxically used more often in low-risk patients

• We examined physicians’ changes in bivalirudin use after providing patient-specific bleeding risk estimates at the time of PCI

BACKGROUND

• Decision support tools (DST) help physicians deliver care that is:

— Evidence-based

— Patient-centered

— Facilitative to shared decision-making

• Marked variability exists in physicians’ use of best practices in decision-making after exposure to an evidence-based DST

— Facilitative to shared decision-making

— Evidence-based

— Patient-centered

MULTIVARIATE MODEL ADJUSTED FOR: site, other studied physician characteristics and pre-DST bivalirudin use patterns

Fig. 1: Physicians’ Patterns in Bivalirudin Use Pre- and Post-DST

Fig. 2: Effect of DST on Physicians’ Changes in Bivalirudin Use

Fig. 3: Physician Characteristics Associated with Changes in Bivalirudin Use

Bivalirudin Use (%)

Pre-DST

Post-DST

Overall

By bleeding risk

Low

Moderate/High

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