

# Idarucizumab (Praxbind) for Dabigatran (Pradaxa) Anticoagulant Reversal

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STEPS new drug reviews cover Safety, Tolerability, Effectiveness, Price, and Simplicity. Each independent review is provided by authors who have no financial association with the drug manufacturer.

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Idarucizumab (Praxbind) is an intravenous humanized monoclonal antibody fragment that binds to dabigatran (Pradaxa) and its active acyl-glucuronide metabolites to neutralize the direct thrombin inhibitor anticoagulant effects.<sup>1,2</sup> Idarucizumab is labeled for immediate reversal of dabigatran's anticoagulant effect for an urgent surgical procedure or for life-threatening bleeding.<sup>2</sup>

Drug	Dosage	Dose form	Cost*
Idarucizumab (Praxbind)	5 g once, given as two consecutive intravenous 2.5-g doses	2.5-g/50-mL vial	\$3,662

\*—Estimated cost to hospital for 5-g dose (2 vials, 100 mL total).

## SAFETY

Patients requiring idarucizumab will likely be critically ill adults with comorbid conditions and have a high risk of mortality at baseline. The RE-VERSE AD study, a case series of 90 patients, demonstrated a low risk of adverse thrombotic effects within 72 hours of administration. However, there continued to be significant mortality (20% overall) for patients taking dabigatran, even with the administration of idarucizumab for life-threatening bleeding or emergency surgery.<sup>1</sup> It is unknown if idarucizumab reduced or increased mortality compared with supportive care. Because this product contains sorbitol, it can theoretically cause significant reactions, including death, in patients with hereditary fructose intolerance. Safety has not been established in pregnant or lactating women.

## TOLERABILITY

Rare adverse effects including dizziness, headache, and nasopharyngitis have been reported with the use of idarucizumab.<sup>3,4</sup> However, most patients studied were critically ill and may not have been able to report

adverse effects.<sup>1</sup> Given the limited duration of use, tolerability issues beyond the appearance of adverse effects already mentioned should not be an issue.

## EFFECTIVENESS

Based on laboratory measures (i.e., dilute thrombin time test and ecarin clotting time test), idarucizumab is effective in neutralizing the anticoagulant effects of dabigatran for patients who present with life-threatening bleeding or need emergency surgery.<sup>1</sup> However, the clinical effectiveness of idarucizumab is unclear. Idarucizumab has not been compared with placebo, and published literature has included fewer than 150 patients receiving dabigatran. Multiple case reports have documented the failure of this medication in critically ill patients since the drug has been marketed.<sup>5-8</sup> Because of the short duration of action of dabigatran, idarucizumab should not be used to reverse dabigatran for routine procedures. This medication has not been tested for effectiveness in combination with other anticoagulant reversal agents, such as prothrombin ►



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complex concentrate, and it should not be used with other medications.

### PRICE

Idarucizumab costs \$3,662 for a single treatment (i.e., two infusions). In one study, approximately 20% of patients required a second dose, doubling the cost.<sup>1</sup>

### SIMPLICITY

Idarucizumab is available as two 2.5-g/50-mL vials for a total dose of 5 g/100 mL and is available on most hospital formularies. The 5-g dose can be administered as two consecutive infusions, at the fastest rate possible, or by consecutive bolus injection of the contents of each vial via syringe.<sup>2</sup> Once the vial is punctured, the medication should be administered within 60 minutes.<sup>2</sup>

### Bottom Line

Idarucizumab is the only anticoagulant reversal agent for dabigatran. Because of its high cost and limited data regarding clinical benefit, therapy should be reserved for patients taking dabigatran who have life-threatening bleeding or are in need of emergency surgery.

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