Clotting drug linked to fewer blood transfusions in joint surgery

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Giving the clotting drug tranexamic acid to patients undergoing joint replacement surgery can reduce the need for blood transfusions while not increasing the risk of complications, finds a study published in the *BMJ* today.

Tranexamic acid has been shown to reduce blood loss during or shortly after major joint surgery (the perioperative stage). However, safety concerns remain because large scale effectiveness studies are lacking.

In the USA, over 1 million hip and knee replacements are performed each year. In England and Wales the figure is about 180,000.

So a team of US researchers, led by Dr Stavros Memtsoudis at Hospital for Special Surgery, Weill Cornell Medical College, and Dr Jashvant Poeran at Mount Sinai School of Medicine, both in New York, set out to determine the effectiveness and safety of tranexamic acid in a large sample of US patients undergoing total hip or knee replacement surgery.

Using data from a national database, their study sample consisted of 872,416 total hip or knee replacement procedures at 510 US hospitals between 2006 and 2012.

After adjusting for factors such as patient age, sex, hospital size and location, type of procedure and anaesthesia used, patients given tranexamic acid (1000 mg, 2000 mg or 3000 mg) on the day of surgery were compared with patients not given the drug.

They found that use of tranexamic acid was significantly associated with an up to 69% reduction in the need for blood transfusions and was not associated with an increased risk of complications, including serious blood clots and acute kidney failure.

A dose of 2000 mg tranexamic acid appeared to have the best effectiveness and safety profile.

The research team also found use of tranexamic acid to be associated with lower rates of admission to an intensive care unit (ICU), lower length of hospital stay, and lower costs of hospital stay.

The authors say that tranexamic acid "was effective in reducing the need for blood transfusions while not increasing the risk of complications, including thromboembolic events and renal failure."

They acknowledge that their study has some limitations, but say "the prudent identification of patients most likely to benefit from tranexamic acid – that is those at increased risk of bleeding and for requiring blood transfusions - is warranted."

And they conclude that "additional studies focusing not only on subgroup specific effectiveness and safety but also on optimal dosing schemes are needed."

In an accompanying editorial, researchers at the London School of Hygiene and Tropical Medicine welcome today's study, but say it would be "premature to recommend the routine use of tranexamic acid in general and orthopaedic surgery."

They point out some existing uncertainty over the risk of vascular complications and call for "an adequately powered randomised controlled trial" to resolve this.

More information: *BMJ*, www.bmj.com/cgi/doi/10.1136/bmj.g4934