New drug target could prevent major global cause of maternal death

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(Medical Xpress)—Researchers at the University of Warwick have discovered a new target for drugs that could prevent the deaths of thousands of women in the developing world due to heavy blood loss after childbirth.

Postpartum haemorrhage (PPH) occurs when the uterus fails to contract vigorously after childbirth and the mother loses 500mls or more of blood in the 24 hours after delivery. PPH is responsible for maternal death in 1 in 1,000 deliveries in the developing world. According to recent figures, PPH also complicates around 10% of all births in England and Wales.

The research team, led by Warwick Medical School, has published their findings in *EMBO Molecular Medicine*.

They have identified a novel drug target called Kir7.1, which when inhibited induces an acute and sustained uterine contraction that could help treat cases of PPH.

Lead author Dr Andrew Blanks, Associate Professor in Reproductive Health at Warwick Medical School, said: "There are currently no drugs available that are effective at treating PPH. PPH is a major global cause of maternal morbidity and mortality, accounting for around 25% of deaths in postpartum mothers in developing nations. Drugs designed to this target have the potential to be used at low doses to encourage normal contractions in a clinical induction, so avoiding a long labour, which results in uterine fatigue. High doses could be used to induce

contractions to treat acute PPH."

The research team, which included colleagues from Washington University, Vanderbilt University School of Medicine, Newcastle University, and University of Edinburgh, worked with Medical Research Council Technology to develop drugs to the new target.

Dr Blanks said: "Often when a woman has been in labour for a long time, the uterus becomes exhausted and cannot contract as quickly as it should after delivery. Our treatment works via a separate mechanism of action to the drugs (oxytocics) that are currently used to induce labour. It bypasses the biochemical pathways which become exhausted and desensitised during a prolonged labour, we have demonstrated in principle that it should be more effective."

More information: The paper, "The inwardly rectifying K+ channel KIR7.1 controls uterine excitability throughout pregnancy," is published online in *EMBO Molecular Medicine*: onlinelibrary.wiley.com/doi/10 … 2/emmm.201403944/pdf

Provided by University of Warwick