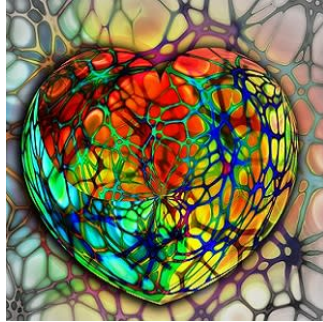


## Is it time for translation of ticagrelor?



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Ticagrelor is more efficient than clopidogrel in attenuating myocardial structural and functional alterations post-myocardial infarction (MI) and in improving cardiac healing, according to a recent study published in the journal *Cardiovascular Research*.

The study by Gemma Vilahur, of the Cardiovascular Research Centre, ICCV Catalan Institute of Cardiovascular Sciences (Barcelona, Spain), and colleagues expand on their previous findings that the initial infarct-size limiting effect of ticagrelor, observed after 24 hours of reperfusion, was maintained for 42 days in pigs receiving a loading dose of ticagrelor before infarction and treated with the maintenance clinical dose of ticagrelor after infarction.

A related commentary, published in the same journal, says the current study is "promising", as the infarct-size-limiting effects of ticagrelor in a large animal model were sustained over time.

While the study results are encouraging, the commentators – Yochai Birnbaum, MD, FACC, FAHA, Department of Medicine, Section of Cardiology, Baylor College of Medicine (Houston, TX) and Yumei Ye, MD, Department of Biochemistry and Molecular Biology, University of Texas Medical Branch (Galveston, TX) – note that several issues have not been answered.

"Is the infarct size limiting effect related to the initial loading dose before infarction, the maintenance dose of ticagrelor postinfarction or both? A smaller initial infarct would lead to better remodelling over time and it is expected that the activation of the prosurvival kinases is higher in viable than in infarcted tissue. The current study does not address this issue," write Drs. Birnbaum and Ye.

In Vilahur et al.'s study, when pretreatment and maintenance dose of ticagrelor were combined, the effect on fibrosis was significantly greater than the effect of ticagrelor pre-loading alone and the effect on left ventricular function tended to be greater.

The study, according to Drs. Birnbaum and Ye, suggests that the effects of the chronic maintenance treatment of ticagrelor after infarction are equally important and are independent of the initial infarct size-limiting effects during the acute phase of ischaemia.

"Can these favourable effects be achieved in the clinical setting? The loading and maintenance doses of ticagrelor and clopidogrel used by Vilahur et al. are those used in the clinical setting. Yet, the body weight of the pigs (43 kg) was lower than that of the average patient. Blood levels of ticagrelor are not reported," the commentators point out.

In conclusion, the commentators say it has yet to be shown that "similar effects can be achieved at blood levels seen in the clinical setting and with the background of current standard of care therapy (aspirin, statins, etc.), before we can proceed with clinical trials."

Source: [Cardiovascular Research](#)

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