High-dose of readily available blood thinner reduces risk of death for moderately ill COVID-19 patients

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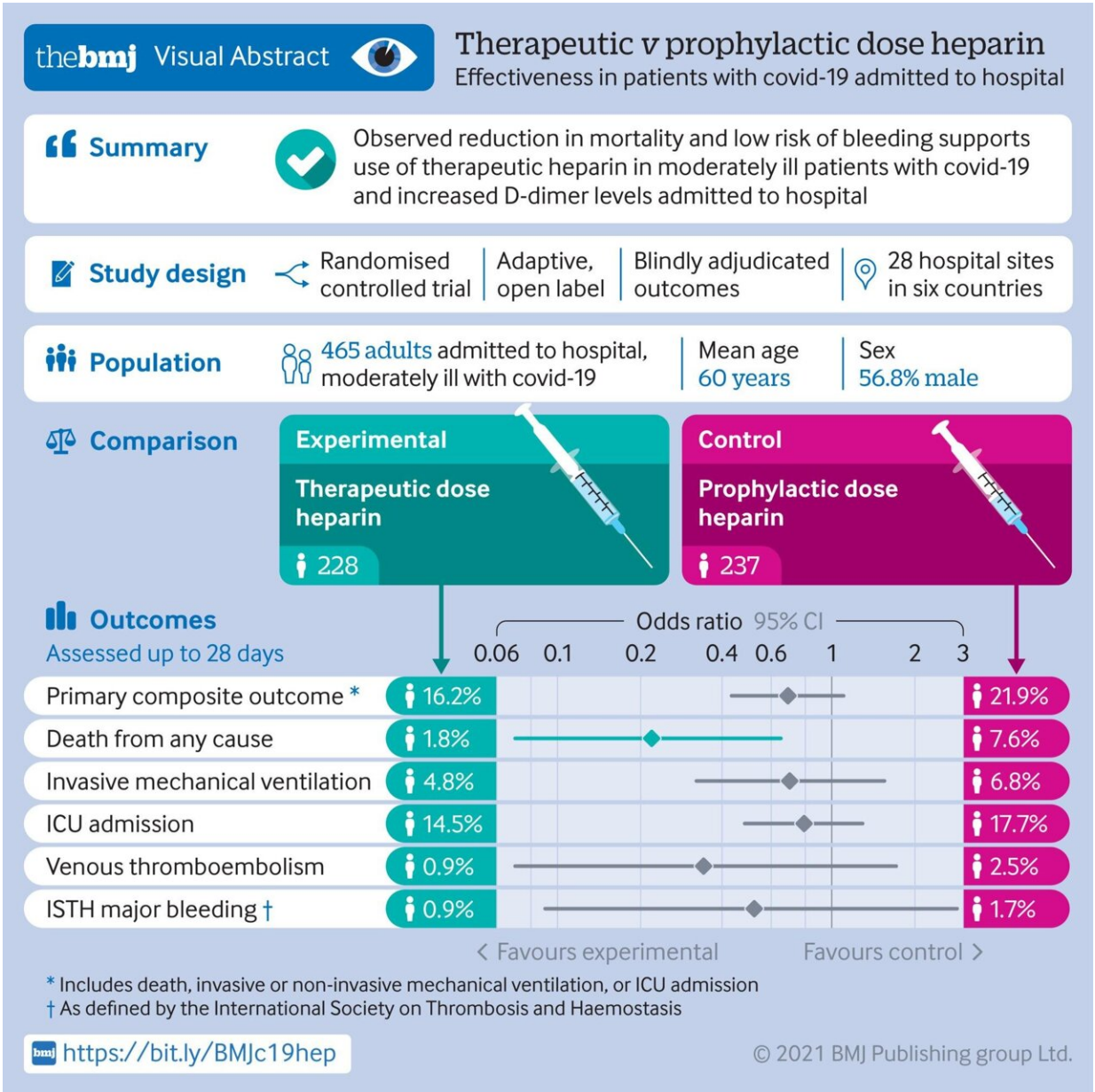

Graphical abstract. Credit: DOI: 10.1136/bmj.n2400

A high dose of an inexpensive and globally available blood-thinning medication reduces the risk of death in hospitalized patients who are moderately ill with COVID-19, suggests a new study led by St. Michael's Hospital.

Published today in the *BMJ*, the international RAPID Trial compared the effects of a high, therapeutic dose of heparin to a prophylactic low dose for patients with moderate COVID-19 and increased d-dimer levels admitted to hospitals. Heparin is a universally used blood thinner that prevents the formation of blood clots. D-dimers are protein fragments produced when a blood clot gets dissolved in the blood stream—increased d-dimer levels indicate higher risks of blood clots.

The researchers studied 465 patients in hospitals around the world and found that while the therapeutic dose of heparin was not associated with a significant reduction in the study's primary outcome, a composite of death, the need for mechanical ventilation or admission to intensive care, the dosing of heparin did reduce all-cause death in moderately-ill COVID-19 patients admitted to hospital by 78 percent.

"Our study confirms therapeutic heparin is beneficial in patients who are on the ward with COVID-19, but other studies suggest it could be harmful for patients who are in critical care," said Dr. Peter Jüni, Director of the Applied Health Research Centre at St. Michael's and co-lead of the study.

Therapeutic doses of heparin are used for deep vein thrombosis or

pulmonary emboli, whereas prophylactic, or lower, doses are used for patients admitted to Internal Medicine wards to prevent blood clotting while they are in hospital.

Several trials have explored the use of blood thinners in COVID-19 patients because the virus causes heightened inflammation and clotting in blood vessels, which contributes to severe disease and death. Dr. Michelle Sholzberg, Head of the Division of Hematology-Oncology and Director of the Coagulation Lab at St. Michael's, and co-lead on the study, hopes this research contributes to a change in treatment guidelines for COVID-19 patients.

"This is a once-in-a-million opportunity—heparin is inexpensive, globally available, and exists in every single hospital pharmacy cabinet right now," she said. "It's an opportunity to rapidly repurpose a drug available around the world."

In particular, she said, the treatment could make a difference in areas where vaccine availability or coverage continues to be limited.

Dr. Sholzberg, Dr. Jüni, and the international group of researchers hope to learn more from the data collected by analyzing it further to address new questions. They are also considering revisiting patient outcomes to understand whether these therapies reduce the probability of long-COVID.

More information: Michelle Sholzberg et al, Effectiveness of therapeutic heparin versus prophylactic heparin on death, mechanical ventilation, or intensive care unit admission in moderately ill patients with covid-19 admitted to hospital: RAPID randomised clinical trial, *BMJ* (2021). DOI: 10.1136/bmj.n2400

Provided by St. Michael's Hospital