JanOne

In the news

NATURE REVIEWS IMMUNOLOGY

Check for updates

COVID-19: the vasculature unleashed

Laure-Anne Teuwen[1,2,3], Vincent Geldhof[1], Alessandra Pasut[1] and Peter Carmeliet[1,4]

On the basis of emerging evidence from patients with COVID-19, we postulate that endothelial cells are essential contributors to the initiation and propagation of severe COVID-19. Here, we discuss current insights into the link between endothelial cells, viral infection and inflammatory changes and propose novel therapeutic strategies.

Journal of *Clinical Medicine*

MDPI

Review

Hypertension, Thrombosis, Kidney Failure, and Diabetes: Is COVID-19 an Endothelial Disease? A Comprehensive Evaluation of Clinical and Basic Evidence

Endothelial cell infection and endotheliitis in COVID-19

www.thelancet.com Vol 395 May 2, 2020

Microbes and Infection 22 (2020) 149–150

Contents lists available at ScienceDirect

Microbes and Infection

journal homepage: www.elsevier.com/locate/micinf

ELSEVIER

Letter to the editor

Covid-19 accelerates endothelial dysfunction and nitric oxide deficiency

tctMD/the heart beat

NEWS

COVID-19 Autopsies Put Endothelial Damage, Angiogenesis in the Spotlight

ESC European Society of Cardiology

Cardiovascular Research (2020) doi:10.1093/cvr/cvaa140

ONLIFE COMMENTARIES

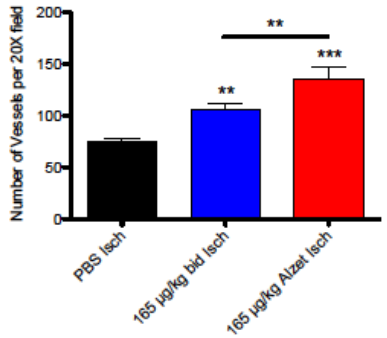
CARDIOVASCULAR RESEARCH Onlife

COVID-19 as a cardiovascular disease: the potential role of chronic endothelial dysfunction

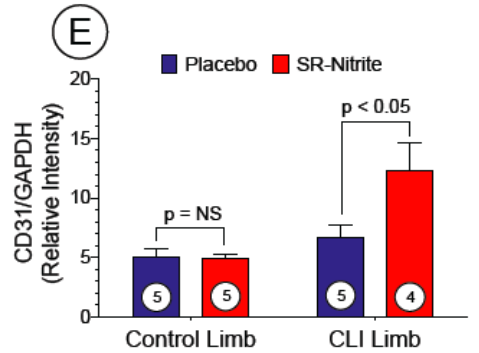
JAN101 improves endothelial cell/vascular function

COVID-19 is believed to attack endothelial cells causing significant tissue inflammation and damage

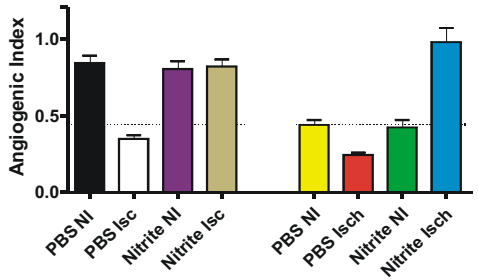
Sustained release nitrite **increases vascular growth**

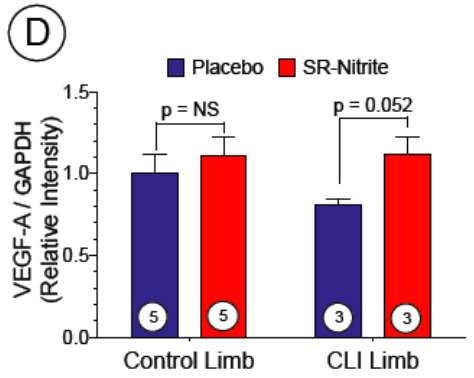


Treatment **increases** markers for **vessel growth** (angiogenesis)



Nitrite therapy **induces angiogenesis** in diabetic tissue



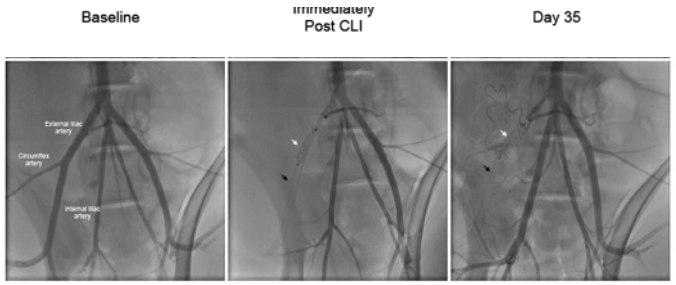


Potential benefits of treating COVID-19 patients with sodium nitrite

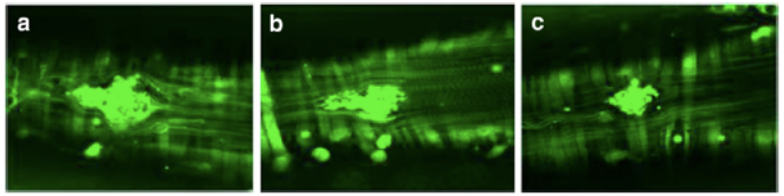
In various animal studies, JAN101 has demonstrated **positive benefits that align with COVID-19 complications**

- Reduces kidney damage
- Prevents tissue necrosis
- Reduces thrombosis
- Increases angiogenesis

Increased angiogenesis in pigs

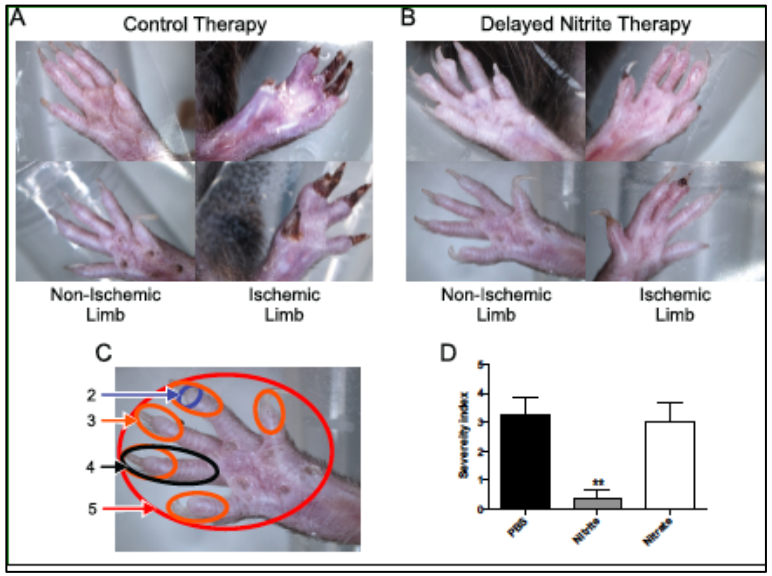


Nitrite reduces thrombosis in mice



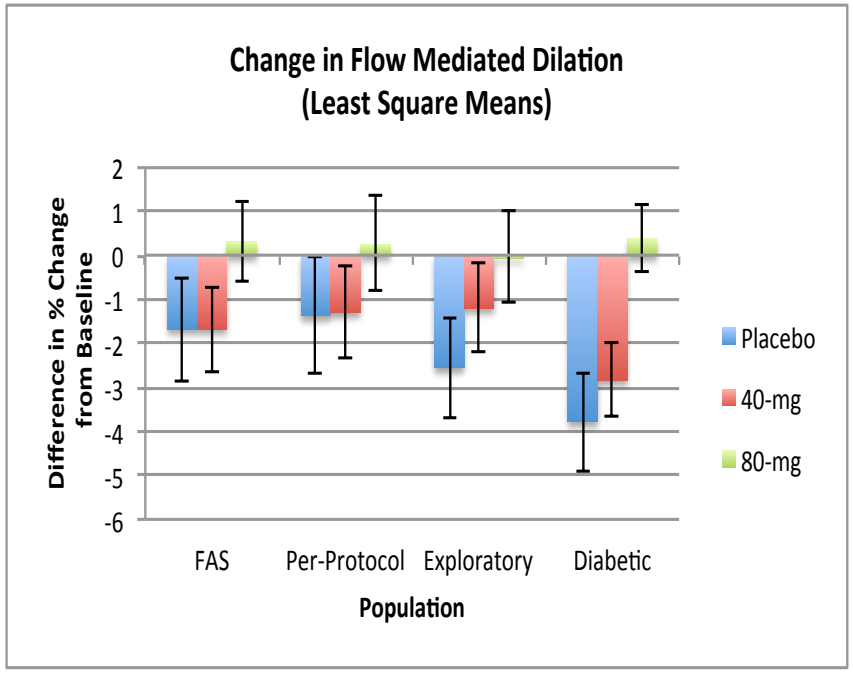
From Kramkowski et al (2017)
Naunyn-Schmiedeberg's Arch Pharmacol 390:85-94

Prevents tissue necrosis in diabetic mice

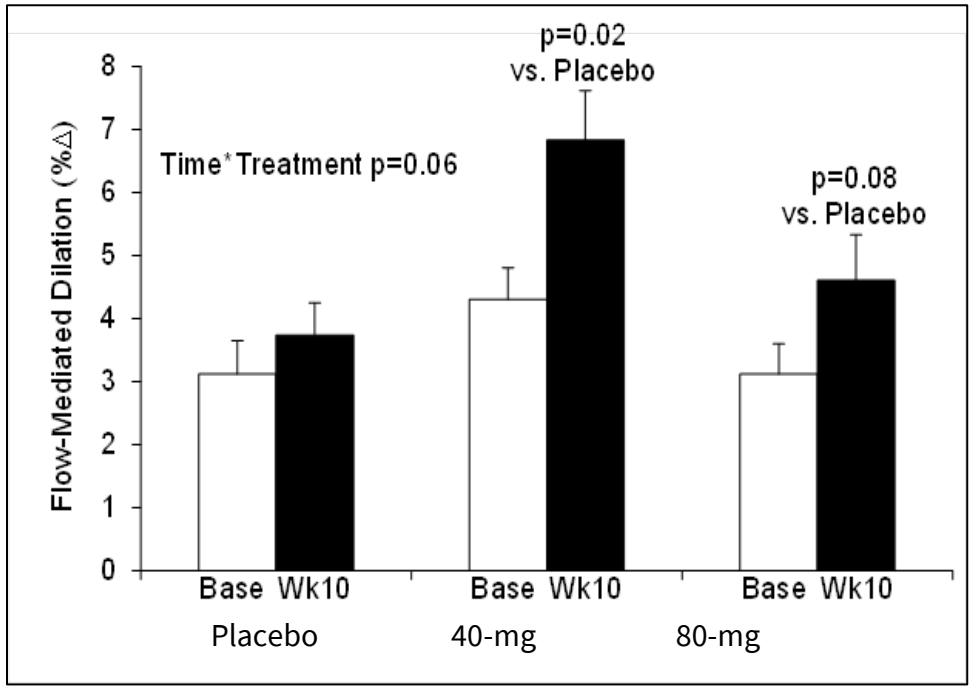


Nitrite improves vascular function in humans

Using flow-mediated dilation imaging technology we can assess vascular function improvement in patients with complications including blood flow and thrombosis



PAD Patients



Healthy Subjects

The JAN101 COVID-19 vascular treatment opportunity

As indicated in multiple human trials, our current sodium nitrate compound may be a successful treatment for the vascular complications experienced by COVID-19 patients

- Shown to improve vascular function
- Shown to reduce vascular complications such as thrombosis
- Protects major organs from tissue damage due to poor blood flow
- Inhibits inflammation, including mitigating the “cytokine storm”, a massive release of cytokine proteins that destroy endothelial cells (cells that protect the lining of vessel tissue)
- Nitrite has proven to be well tolerated and safe

Intend to seek emergency use authorization

Expanding existing JAN101 IND for clinical study to treat COVID-19 vascular complications