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THE WORLD IS EXCITED ABOUT REGENERATIVE MEDICINE

Articles and studies are popping up all over the world related to the use of [MSC and MSC Exosomes](#) to treat patients who have serious COVID-19. These Regenerative Medicine Products are thought to prevent replication.

I have compiled a few of these for your review, while practicing [social distancing or self-quarantine](#) and hope you find them as interesting as I do!

For daily updates on the COVID-19 outbreak, I highly recommend signing up for the [Johns Hopkins Bloomberg School of Public Health daily situation reports newsletter](#).

What do [Stem Cells and Exosomes](#) have to do with COVID-19?

My team and I use them for many reasons; to help support optimal function of the immune system in healthy patients; to stimulate regeneration for improvement in skin, hair, sexual function, joint cartilage; to turn of inflammation; pain relief; improved brain function; and pretty much anything else you can think of.

There is data coming out of many places in the world that support the promise of MSC and MSC derived Exosomes for Alzheimer's, Parkinson's, Autoimmune disease, Autism, Stroke, and MANY other very devastating diseases. [ARTICLES](#)

NOW, it is being reported that there is the utility of biologics as a therapy to stop viruses, even deadly ones like COVID-19. The COVID-19 infection primarily effects the lungs causing pneumonia, acute lung injury and potentially acute respiratory distress syndrome (ARDS), which can cause respiratory failure.

The most concise explanation we have seen comes from the University of North Texas Health Science Center in Fort Worth, TX:

“When coronavirus strikes, it can result in a virus-induced cytokine storm – the term used when the immune is so triggered that fluids fill the lungs and tissues are damaged.”

“This is thought to be one of the main reasons why the COVID-19 pneumonia actually kills an individual – this storm of activity trying to fight the virus.”

- David P. Siderovski, PhD, Professor and Chair Pharmacology & Neuroscience in HSC's Graduate School of Biomedical Science.

Ft. Worth, Texas

The University of North Texas Health Science Center recently reported a small study seven patients who got stem cells recovered and were discharged from the hospital within 14 days. But, of the patients who were injected with the placebo, one died, one became severe, and the third had Acute Respiratory Distress Syndrome (ARDS).

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Read the full article here: [HSC Researchers Make Stem Cell Discovery That Could Help Fight Coronavirus](#)

See the full study here: “[Transplantation of ACE2- Mesenchymal Stem Cells Improves the Outcome of Patients with COVID-19 Pneumonia.](#)” Volume 11, No. 2, 2020, pp.216-228, *Leng Z. et al.*

College Station, Texas

A new study published in *Aging and Disease* from the Texas A&M Institute for Regenerative Medicine reports that administration of clinical-grade human MSCs into patients with coronavirus disease 2019 (COVID-19) resulted in improved functional outcomes.

See the full study here: “[Mesenchymal Stem Cell Infusion Shows Promise for Combating Coronavirus \(COVID-19\) - Induced Pneumonia.](#)” *Aging and Disease*, Volume 11, No. 2, 2020

Data out of China with larger sample groups seems to also follow the same trend.

Beijing, China

“Stem cell therapy has been used to treat 64 patients in severe and critical condition. Those patients' breathing difficulties were gradually relieved and they were generally cured in eight to 10 days.”

“The therapy also showed advantages in preventing pulmonary fibrosis and improving the long-term prognosis for patients.”

Read the full article here: [China reports new progress in drug, therapies against Covid-19](#)

Beijing, China

This follows some initial reports that came out of China last month: [Coronavirus: critically ill Chinese patient saved by stem cell therapy, study says](#)

Supply

With all of the information coming to the surface, one can't help but wonder, will there be enough [Stem Cell Product](#) to address this need? Will industry be able to provide thousands of patient doses of therapeutic-grade, cGMP manufactured MSCs for rapid deployment by the end of the 2020?

Probably not.

Most late-stage hMSC production processes still involve manufacture via 10-layer vessels with heavily constrained scalability (see Rowley, et al. article in *Bioprocess International*). Today's manufacturing processes can yield only 10s of product doses per manufacturing lot, e.g. per cord, severely limiting a possible rapid deployment of product doses.

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There are only so many umbilical cords.

[Exosomes](#), on the other hand can be scaled up to serve the emerging demand and are also showing great promise with less difficulty in storage and risk of iatrogenic disease.

In Shanghai, China, [clinical trials](#) are underway to explore the efficacy of aerosol inhalation of exosomes in the treatment of patients with severe novel coronavirus pneumonia (NCP).

Further, “MSC exosomes have been investigated in [preclinical studies](#) as an acellular alternative to cell-based therapy for ARDS.” .

“Beyond their effects in preclinical models of ARDS, MSC exosomes may also interfere directly with viral replication to reduce the levels of the virus. In vitro studies of both influenza and hepatitis C virus (HCV) have demonstrated the ability of MSC exosomes to inhibit viral replication via transfer of micro RNA (miRNA). Both of these viruses are RNA viruses, like coronavirus, and the pathogenesis of the pulmonary disease in influenza is not dissimilar to that of coronavirus.”

For further insight, examine the following studies regarding the promise of [exosomes](#):

- [Exosomal MicroRNAs Derived from Umbilical Mesenchymal Stem Cells Inhibit Hepatitis C Virus Infection](#)
- [Mesenchymal stem cells-derived extracellular vesicles in acute respiratory distress syndrome: a review of current literature and potential future treatment options](#)

The Studio Team is happy to be a resource to you in the emerging field of Regenerative Medicine. Please [reach out to us](#) for more information on Regenerative technologies, and how we might help you to **Secure Your Wellness**. We suggest you be proactive to avoid having to be reactive. MSC and MSC Exosomes are only one very exciting opportunity for wellness, peak performance and living your best life.

Be Well,

Dr. Lisbeth Roy, D.O.