Dr. Delgado COVID-19 Update 5-1-20

Treatment Update

On 4/29 Gilead Sciences sent out a 177-word press release: A recent NIH directed trial has shown that its experimental drug, remdesivir, had reduced the time it took for patients with Covid-19 to get better when compared to placebo. A four day decrease (from 15 to 11 days) was noted in time to recovery or a 31% decrease overall. Mortality was decreased by over 3%, but was not statistically significant. This study was only on severely ill and hospitalized patients and remdesivir was only administered intravenously.

Of note, the Lancet medical journal published its results from a similar study of remdesivir the same day and found no significant benefit to placebo as to the same end point of reduction in time to recovery. They surmised that the differences may be due to when remdesivir is given.

The next step will be determining the exact group that should receive the medication and, most importantly, when in their clinical course should any treatment be instituted. We know that with most antiviral medications the earlier you give them the better the outcomes. That implies that better diagnostic testing is important and will be essential in identifying patient cohorts, such as the

elderly or those with predicted poor outcomes. who might benefit from earlier interventions.

Vaccine update

What is considered one of the most promising vaccine candidates is the ChAd0X1 vaccine being developed by Oxford University.

It was chosen as the most suitable vaccine technology for a SARS-CoV-2 (COVID-19) vaccine. It can generate a strong immune response from one dose and it is not a replicating virus, so it cannot cause an ongoing infection in the vaccinated individual. The vaccine, an adenovirus vaccine vector, is a very well-studied vaccine type, having been used safely in thousands of subjects and in vaccines targeting over 10 different diseases.

They are currently initiating human trials and hope to complete them by September. The upcoming trials will be critical for assessing the feasibility of the vaccination against COVID-19, its safety and could lead to early usage.

At the same time as conducting the first clinical trial, production of the vaccine is being scaled up to be ready for larger trials and future deployment. A company called Serum, based in India, aims to have 40 million doses of the Oxford University vaccine ready by September – the

same time as the results of human trials are expected. By starting vaccine manufacturing scale-up immediately, the team hopes to ensure that vaccine doses are available as soon as possible if the trials prove the vaccine is safe and effective.

Most experts have repeatedly cautioned that a real shot at a successful vaccine is likely years and not months away. So, we will need to follow any developments as to vaccines closely and temper our expectations accordingly.

More on Testing

There is widespread consensus in the scientific community that to safely open the economy will necessitate a significant increase in testing to effectively track and contain the pandemic.

It should be scalable to our population so it will require firm determination, commitment and investment. It will entail repurposing our labs for centralized testing in conjunction with accurate and reliable at home methods.

DNA sequencing tools, which can read trillions of base pairs of human DNA daily, could also be repurposed to test for the presence of coronavirus in a mass scale. These instruments already exist all over the country and

many could be distributed to hospitals and doctor's offices.

Possibly, samples from low-risk asymptomatic people could be pooled together for initial testing and any further screening would occur in the event of a positive result. So, for instance, do tests on 50 or so samples at once and move on if all are negative. This would allow many more samples to be analyzed at once and is already being done in Europe.

Many more suggestions or options exist and will require innovation, atypical collaborations and tapping already existing technologies and infrastructures in ways that could potentiate our abilities to accomplish these goals.

More on Contact Tracing

Contract tracing is a time-tested investigation method used to successfully fight outbreaks. It has been at the cornerstone of every major epidemic investigation. You uncover, via testing, who may have been exposed, isolate those at risk and halt the illnesses's spread.

This needs a commitment to scale just as testing itself. Heath departments have been chronically underfunded and have lost upwards of 55,000 workers since 2008. As of now, the estimate is that there are currently slight over 2000 contact tracers in the US. In the city of Wuhan

alone, where this began, 9000 currently active tracers exist and this for a city of 11 million people. A recent report from Johns Hopkins, estimated more than 100,000 tracers will be needed to be effective in surveillance of our country.

As I discussed previously, current bluetooth and GPS technology exists in cellular phones and 8 out of 10 Americans own a smartphone. In addition, Apple and Google, which are responsible for 99% of software, are working to build systems for exposure notifications and hopefully they will be interoperable. This is being done under federal supervision.

The legal issues related to privacy and civil liberties with technological tracing are valid, but doing this in a decentralized fashion, ensuring anonymity and ensuring this will only allow for the duration of the pandemic in the name of public health is a starting point.

One important consideration is that only 42% of those over 65, a demographic with an elevated risk for poor outcomes, have smartphones. Moreover, many clusters exist in homeless and minority populations which also have a lower percentage of smartphone use. Lastly, we must overcome potential language barriers, fears of any federal tracking and any sub-population's willingness to comply. These groups could be a continued source of

new clusters and will necessitate the active and physical tracing addressed above.

In the end, most Covid-19 spread occurs with close contacts-those with whom you spend the most time with or you know personally. Even in Asia, where a lot of reports as to the benefits of technological tracing have originated, the tangible actions of people identifying, tracking, coordinating and assimilating the information is proving to be the nexus of its success.

Intra office testing

Testing is progressing seamlessly to this point. Thank you for all of your continued patience, cooperation and consideration as to the parameters in place for everyone's safety.

We look forward to sharing your results as they begin to arrive.

R. Delgado, MD & staff