

Covid-19 Treatments

The Covid-19 pandemic has brought many challenges for all sectors of our society, but there have been spectacular advancements in drug discovery and development. In the wake of the Covid-19 pandemic, scientific researchers around the world are working together and sharing information with openness and speed. Research papers are being openly discussed in public forums and researchers from a wide range of disciplines are sharing, commenting and analysing each other's work at a remarkable rate. This healthy debate has meant that there have been significant advances in the development of new uses for existing medicines.

Established Medicines

Taking an existing medicine that we know a lot about and reappraising it in the light of a treatment for patients with Covid-19, has many advantages. The drug will have been used for many years in many millions of patients worldwide. We know what it does and what its side-effects are. In addition, it has already gone through the arduous regulatory process of getting a product authorisation to be placed on the market for the first time. Some of these "old medicines" have given encouraging results in clinical trials.

Current approaches to Covid-19 therapies generally fall into two categories: antivirals — which prevent the virus from multiplying, and immune modulators — which help the immune system to fight the virus or stop it from overreacting dangerously.

There are thousands of clinical trials of Covid-19 therapies taking place across the world. Back last June the European Medicines Agency said it was in discussion with the developers of 132 potential Covid-19 treatments.

We heard at the early stages of the pandemic about hydroxychloroquine (Plaquenil), a drug used in arthritis. However, early claims proved unfounded and due to serious side-effects that need monitoring, the balance of benefit to risks was not favourable. In recent times there have been some significant developments with some other old drugs, including Dexamethasone, Colchicine and Ivermectin.

Dexamethasone

It has been suggested that the use of dexamethasone to treat Covid-19 patients



may have saved 650,000 lives around the world. Scientists from the University of Oxford were the first to suggest this treatment for Covid-19. In June 2020 their large clinical trial, Recovery, found that dexamethasone, a cheap and widely available steroid, could reduce deaths from Covid-19 by a third for patients on ventilators, and by almost a fifth for those on oxygen.

Furthermore, dexamethasone, combined with the anti-inflammatory drug tocilizumab (RoActemra - commonly used to treat rheumatoid arthritis), was found to reduce the risk of death in patients, hospitalised with Covid-19, by 4%, and in those who required oxygen, by 14%. This treatment also reduced the time patients spent in hospital by five days, thereby improving survival, shortening hospital stay, and reducing the need for mechanical ventilators.

Colchicine

Colchicine, a drug normally used to treat and prevent inflammatory conditions, which is a feature of some Covid-19 infections, has been found to have the potential to significantly reduce hospital stays among Covid-19 patients and the need for extra oxygen.

The research was carried out between April and August last year when patients admitted to hospital with moderate to severe Covid-19 were randomly assigned to receive different levels of colchicine. The results were based on only 72 patients, but for those patients treated with additional colchicine, the average length of time they needed oxygen therapy was reduced from 6.5 days to four days. The average length of hospital stay was reduced from nine days to seven days.

The results of this research, conducted in Brazil, comes after an international trial

found that colchicine reduced hospitalisations and deaths among Covid-19 patients by more than 20%. These reductions in the need for oxygen therapy and length of hospital stay were not only good for patients but they also cut health-care costs and the need for hospital beds.

Early results from a Canadian trial have shown that the use of colchicine was associated with reductions in the risk of death or hospitalisation. In patients with a proven diagnosis of Covid-19, colchicine reduced length of stay in hospital by 25%, the need for mechanical ventilation by 50%, and deaths by 44%.

Ivermectin

Ivermectin is best known to the farming community as Ivomec. It is an anti-parasitic agent that has been shown to have antiviral activity against a broad range of viruses. It has now been shown to inhibit the SARS-CoV-2 virus in the laboratory. However, it is not licensed in Ireland for human use as there has been very limited use for it.

There has been a lot of controversy surrounding Ivermectin. However, the Front Line Covid-19 Critical Care Alliance in the USA recently stated that:

- Ivermectin has multiple randomized controlled trials that demonstrate large reductions in mortality rates, shorter durations of hospital stay, profound reductions in the infectivity rate, faster times to clinical recovery and faster times to viral clearance.
- Ivermectin is globally available, low cost, given orally, requires no special shipping or handling, and is safe to use in nearly all clinical situations.

- Ivermectin can be widely used in both early outpatient treatment as well as in prevention of transmission.

Nonetheless, the use of ivermectin in Covid-19 remains controversial.

Finally

There is no doubt that there will be many more developments before this pandemic is over. Our knowledge is changing on an hourly basis and it is virtually impossible to keep up with all the information that is being delivered every day.

Although this pandemic is not over, this great openness between researchers for treatments for Covid-19 is a major cause to be optimistic about the future.