Favipiravir: A new and emerging antiviral treatment for COVID-19

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Abstract

The COVID-19 pandemic stunned the world with a staggering socioeconomic and public health impact. However, the COVID-19 pandemic will not be the last viral global outbreak. In the past 10 years the world has also witnessed outbreaks of Zika and Ebola.

Antiviral drugs have a very narrow therapeutic window which means the drug's likelihood to generate positive outcomes diminishes with each passing day after onset of symptoms. Many studies have failed to meet their primary endpoint because the architects of those studies failed to take into consideration the simple - albeit crucial - element of time into the drug administration equation.

Given the impossibility of predicting the future, it is important to focus not only on virus-specific compounds, but on broadly active compounds that could address multiple threats. Avigan is uniquely positioned to address the current COVID-19 pandemic and future viral outbreaks now, not in the future.

Favipiravir is a selective inhibitor of viral RNA-dependent RNA polymerase (RdRP) with potent antiviral activity against single-stranded RNA viruses including coronaviruses. This is the protein responsible for "building" the viral proteins. Favipiravir is able to target the protein necessary for the coronavirus to replicate, creating mutations that make it impossible for the virus to copy itself.

The key benefits of Avigan:

A highly effective oral antiviral that can be taken at home early in the course of infection, preventing transmission of the virus and hospitalization, ultimately saving lives.

A very safe, broad-spectrum anti-viral drug that has been evaluated in 40 clinical studies prior to the start of the COVID-19 pandemic (16 performed in the United States). Avigan has shown to be well-tolerated with a well-understood safety profile. 10-year shelf life allows governments to augment the strategic stockpile to be prepared for potential future pandemics, one drug for multiple viruses allows for savings both on product costs and logistics. A cost-effective drug with efficacy against viral threats such as COVID-19, already approved for the treatment of COVID-19 in 8 countries.

Ideally positioned as a first line of defense to offload hospital burden, self-administered at home and cost effective. Ability to treat patients upon positive test or strong suspicion, thereby gaining best possible outcomes for patients and reducing surges on hospital resources.

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Biography

Dr. Kaszynski is now the Chief Medical Officer for AiPharma Lab. As an emergency care physician, Dr. Kaszynski's clinical duties encompass both ground and aerial operations. In the ER he and his team represent the tip of the spear in casualty/emergency care and as an active member of the Helicopter Emergency Medical Service (HEMS) he is responsible for providing rapid response critical care to patients in remote areas presenting with life-threatening conditions.

As a Senior Medical Advisor to the Democratic Republic of Congo, Dr. Kaszynski has worked together with the Coordinator General of the Ebola response to identify and implement novel strategies to help combat/contain the Ebola outbreak. It was during the 2019 Ebola outbreak in the North Kivu and Ituri provinces in the Democratic Republic of the Congo where Dr. Kaszynski, together with the DRC Ministry of Foreign Affairs and the Coordinator General for the Ebola outbreak agreed upon proposals for operational deployment of favipiravir in a post-exposure prophylactic capacity.

While on investigational deployment to the frontline base of operations in Northern Kivu in January 2020, Dr. Kaszynski and Fujifilm Corporate Vice President, Mr. Koichi Yamada (Head of Fujifilm Pharmaceutical Division) learned that a pneumonia of unknown etiology which was rapidly emerging in China—later identified as coronavirus disease 2019 (COVID-19) which is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Recognizing that SARS-CoV-2 relies on an RNA-dependent RNA polymerase (RdRp) which assumes a pivotal role in viral replication—and concomitantly the specific target identified by favipiravir for anti-viral therapy—the researchers quickly combined their expertise to formulate clinical trials in order to rapidly establish an efficacy profile against this novel virus.

In response to the current COVID-19 pandemic, Dr. Kaszynski has co-founded the "Global Unified platform for the Rapid Development and Investigation of therapeutics for Novel Pandemics (GUARDIAN)" program in collaboration with the Imperial College (London) to optimize clinical studies during outbreaks and pandemics. Dr. Kaszynski is one of the few physician-scientists with operational and academic experience involving the use of favipiravir and has been instrumental in establishing the following international COVID-19 clinical trials spanning five continents:

- The "PIONEER" Trial: A Randomized Controlled Trial of Early Intervention in Patients Hospitalized with COVID-19: Favipiravir verses Hydroxycholorquine & azithromycin & zinc vErsEs Standard CaRe (United Kingdom and Belgium).
- The Favipiravir Ambulatory Treatment Evaluation for Covid-19 (FATE) Trial in collaboration with South African Medical Research Council and Pretoria University (South Africa).
- A Multi-center, Randomized, Double Blind, Placebo Controlled Clinical Trial Evaluating the Efficacy and Safety of Favipiravir in Mild Moderate to Severe COVID- 19 Patients (Kuwait).
- A Phase 2 Randomized, Double Blinded, Placebo Controlled Study of Oral Favipiravir Compared to Standard Supportive Care in Subjects with Mild or Asymptomatic COVID-19 (USA).

Dr. Kaszynski's clinical experiences with favipiravir are not limited to the academic circuit – he has also exhaustively utilized the drug in the clinical setting. He and his team at the Emergency and Disaster Care Center at Tokyo Metropolitan Hospital have actively and successfully treated an extensive variety of COVID-19 patients using the broad-spectrum antiviral.

In addition to numerous appearances on prominent media sources such as TIME Magazine and NHK (Nippon Hoso Kyokai; the Japan Broadcasting Corporation), Dr. Kaszynski has been invited to speak at various scientific venues across the globe to address up-to-date evidence and provide instructions on operational deployment of favipiravir in response to the COVID-19 pandemic.

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