Does IHU Mediterranean Infection influence Gilead stock price?

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Abstract

During Covid-19 pandemic the Gilead stock prices rose sharply with large variations. These fluctuations have been tentatively related to communications, publications or leaks about Remdesivir or hydroxychloroquine/azithromicin treatment.

In December 2019, an outbreak of an emerging disease (COVID-19) caused by a novel coronavirus (named SARS-CoV-2 later) started in Wuhan (China) and rapidly spread in China and outside1,2. The WHO declared the epidemic of COVID-19 as a pandemic on March 12th 20203. Two promising drugs against covid-19 rapidly emerged: Remdesivir and Chloroquine4. Remdesivir, a new antiviral drug developed by Gilead Science in 2017, is currently under clinical investigation as a treatment against Ebola virus infection5. Chloroquine is a very old, widely used and safe generic antimalarial drugs6.

Some early clinical Chinese studies suggested efficiency of chloroquine7. From this, IHU Mediterranean Infection (IHU-MI) chose to evaluate the association of hydroxychloroquine, a closely related molecule to chloroquine better tolerated, and azithromycin drugs. Azithromycin is a generic classical antibiotic, chosen for prevention of bacterial complications and also for these antiviral properties8. Despite some promising results, with a first clinical trial including 24 patients9 and another one including 80 patients10, the treatment associating hydroxychloroquine and azithromycin was strongly attacked. The first argument was that Clinical trials were not performed as conventional
RCT design. The second argument was the toxicity and side effects of these two molecules\textsuperscript{11}. Such debate was surprising considering that these two generic drugs have been widely prescribed for a long time, are very safe and their side effects are well documented and limited\textsuperscript{12}. Conversely, investors seem more optimistic with Remdesivir although there is still no publication demonstrating efficiency about Remdesivir treatment and Remdesivir presents toxicity side effects. Meanwhile, stock exchange of Gilead, the biopharmaceutical company developing Remdesivir molecule, increased significantly in a period where numerous stock market prices fall including pharmaceutical companies. Consequently, we decided to analyze the reasons and consequences.

We compared the market trading price from January first to May 6\textsuperscript{th} of several pharmaceutical companies: Gilead, Sanofi, Roche, GlaxoSmithKline and Abbvie (figure 1). With the exception of Gilead, all companies suffered from the COVID-19 crisis with a drastic decrease at the end of March 2020 followed by a steady increase thereafter. The absolute cumulated fluctuations day by day of the stock price for these companies represent 2.4, 1.71, 1.65, 1.57, 1.29 times its value for Gilead, Abbvie, Sanofi, Roche and GSK respectively. Cleary, Gilead stock price presented the most variations. They were also most exceptional as they were not due to the drastic drop and catching up as other companies.

The capitalization of Gilead is about 100G$. The share market trading price of Gilead from January first 2020 is represented in figure 1\textsuperscript{13}. It increased regularly from the end of January. The minimum price of the share was 62.83$ January 21\textsuperscript{st} and reached up to 85.19$ on April 17\textsuperscript{th}. This corresponds to a capitalization increase of about 35.6G€ in 3 months. The curve shows also large fluctuations showing a quasi-perfect synchronization with declarations or publications about Remdesivir and IHU-FMI (figure 1). Forces that increase the market price of Gilead are journal publications or leaks related to the performance of the Remdesivir and information about the start of clinical trials. The main elements decreasing the market price are weekly communication of the IHU-FMI about the
Remdesivir competitive hydroxychloroquine/azithromycine treatment, politic support or journal publications about inefficiency of Remdesivir.

The main fluctuation was observed on March 16th with a market price increase of 13.7$ in three days, corresponding to an increase of the companies value of 21.8G$. This huge increase followed Dr. Fauci's lecture announcing, despite the scientific use and without any documentation, that Remdesivir was only effective for the duration of hospitalization but not for mortality or clinical improvement.

Publications about the efficiency of Remdesivir as a treatment against COVID-19 are not convincing neither from a methodological nor from a medical point of view. Furthermore, a Chinese team recently reported the absence of benefit of Remdesivir treatment against placebo. Consequently, the value of Gilead based on the potentially of Remdesivir is overestimated as it was pointed by Gilead analyst. Furthermore, we estimated from the ABC bourse that the total exchange of shares from January first to May 6th represents 10.7G$, a very high-level. Communication about Remdesivir considerably influences stock change of Gilead. Given that, we can raise the issue of insider trading.

Prior knowledge by certain Gilead shareholders of the publication of articles written by Gilead itself or of statements or leaks from various institutions would allow them to obtain enormous benefits.

Materials and Methods.

Cotation of pharmaceutical companies and volume shares exchanged from January first to May 6th have been uploaded from ABC bourse website. The total sum exchanged of share was calculated by multiplying the opening price of the share by the number of share exchanged and sum over the period.
The cumulated fluctuations were the absolute difference between the price \((D_i-D_{i-1})\) and sum over the period. This Sum was divided by the average price of the share over the period to compare the cumulated fluctuations with the share value.

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Competing interests

Author declare to have no conflict of interest

Reference.


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Legend figure 1
Cotation of some pharmaceutical companies (Opening price). Curves is the price of the stock price left axis. Histogram is the volume of shares exchanged, right axis. a) Gilead, b) Sanofi, c) Abbvie, d) Roche, e) Glaxosmithkline.

Legend figure 2. Cotation of Gilead science. Opening price.
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+ Corresponds to elements susceptible to explain increase of the market price of Gilead

- Corresponds to elements susceptible to explain decrease of the market price of Gilead

Increases

+a. COVID-19 reaches Europe

+b. February 13th first publication of “Prophylactic and therapeutic remdesivir (GS-5734) treatment in the rhesus macaque model of MERS-CoV infection.” In PNASS

+c. Clinical trial of remdesivir to treat COVID-19 begins

+d. Publication of the First patient healed with Remdesivir.

+e. Start of the European trial discovery

+f. Fake news about chloriquine toxicity

+g. Gilead initiates two studies of remdesivir for Covid-19 in UK

+h. Publication of the first clinical trial about Remdesivir

+i. A leak from Chicago hospital suggests patients are responding to Remdesivir.

+j. The health ministry is moving to approve the antiviral drug Remdesivir to treat domestic coronavirus patients.

+k. NIH claims Remdesivir Accelerates Recovery from Advanced COVID-19

Decreases

-a IHU-MI suggest that hydroxycholoroquine is a treatment for COVID-19

-b. IHU-FMI announce the beginning of the clinical trial with hydroxychloroquine

-c. IHU-FMI announce that it will treat COVID patient with hydroxychloroquine and azithromycin invoking Hyppocratic Oath

-d. Publication of First clinical trial of the IHU-MI

-e. French president E Macron visits IHU-FMI (April 9th).

-f. WHO Leak “First trial for potential Covid-19 drug shows it has no effect”

-g. A clinical trial published by the lancet show no benefit for the Remdesivir
Figure 2