



APPLICATIONS OF QUERCETIN FOR THE PREVENTION OF COVID-19 IN HEALTHCARE WORKERS

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Abstract

The topic of coronavirus infection (COVID-19) is becoming more and more relevant, especially during the pandemic of this infection. Also, it is important to study the effects of known drugs on the infectivity and course of SARS-CoV-2 infection. This article reveals significant positive results when using the drug quercetin and its combination with ascorbic acid on the morbidity rate of medical workers working with COVID-19 patients.

Keywords: COVID-19, morbidity of medical workers, quercetin, ascorbic acid.

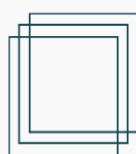
INTRODUCTION

Coronavirus disease 2019 (COVID-19), the causative agent of which is the SARS-CoV-2 virus, the most important medical and social problem on a global scale, has received the status of a pandemic [2]. This pathology is spreading rapidly in the world, causing complications such as viral pneumonia, severe acute respiratory syndrome, sepsis, and as a result can be fatal [5].

The health systems of all countries of the world were not ready for the situation. Currently, there are no specific antiviral agents in clinical practice that could be used for the purpose of etiotropic therapy [1]. Various vaccines against COVID-19 infection have been created in the world, but all are under study. Therefore, supportive therapy and nonspecific treatment of COVID-19 have so far become the only treatment options for this disease [3]. In modern conditions, treatment of patients with COVID-19 of varying severity takes into account the peculiarities of the development of the disease, its course - with the use of a significant arsenal of drugs – polypropagmasia [4].

Interest in quercetin as a means of prevention and treatment of COVID-19, with the high severity of this problem, has today found its response among many specialists of scientific and medical profile. In particular, EVMS Medical Group recommends a protocol for the management of patients with COVID-19 [6].

For a long time, research has been conducted in Ukraine on the development and pharmacological study of quercetin preparations for enteral and parenteral use. Today, two drugs manufactured by Public Joint Stock Company “Scientific and Production Center “Borshchagovsky Chemical and Pharmaceutical Plant” - Quercetin and Corvutin® - are presented on the pharmaceutical market.



In order to reduce the severity of the disease in particularly vulnerable individuals (aged > 60 years), as well as patients with mild symptoms, scientists have suggested using a combination of quercetin and vitamin C 250-500 mg twice a day. The simultaneous use of quercetin with vitamin C is of scientific and practical interest. Our goal was to study the effect of this combination on the morbidity rate of medical workers working with COVID-19 patients.

Materials and Methods of Research

Similarly to the work of Turkish and Ukrainian colleagues [2], we, in turn, also prescribed 40 employees of our clinic as a preventive measure for COVID-19, the drug Quertin 40 mg 2 tablets 3-4 times a day - a daily dose of 240 mg.

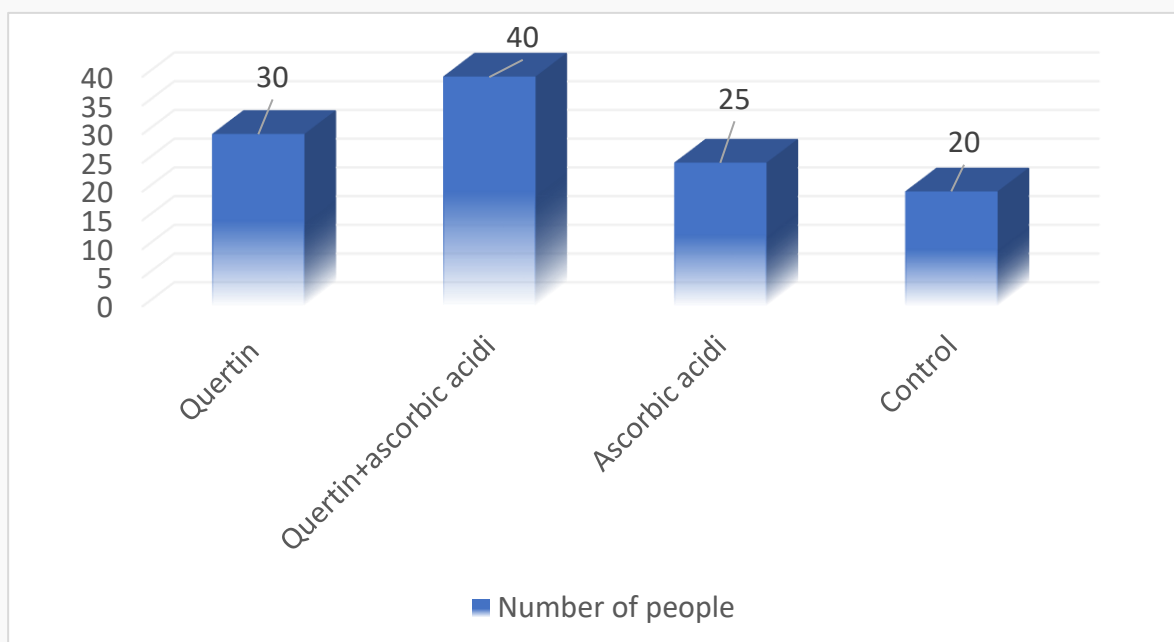


Figure 1. Groups of health workers included in the study groups.

For comparison, 40 medical workers were given Quertin with ascorbic acid at a dose of 250-500 mg per day in tablets and 25 employees were given only ascorbic acid at the appropriate dose depending on body weight for 1 month and 20 employees were included in the control group who did not use anything. Only 125 medical workers participated in the research.

Results and their Discussion

During the study, it was noted that no cases of COVID-19 were registered in medical workers who received quercetin and quercetin + ascorbic acid as prophylaxis during the study period. In the study group, COVID-19 diseases that received only ascorbic acid were registered in 13 health workers and the mortality rate was 2.

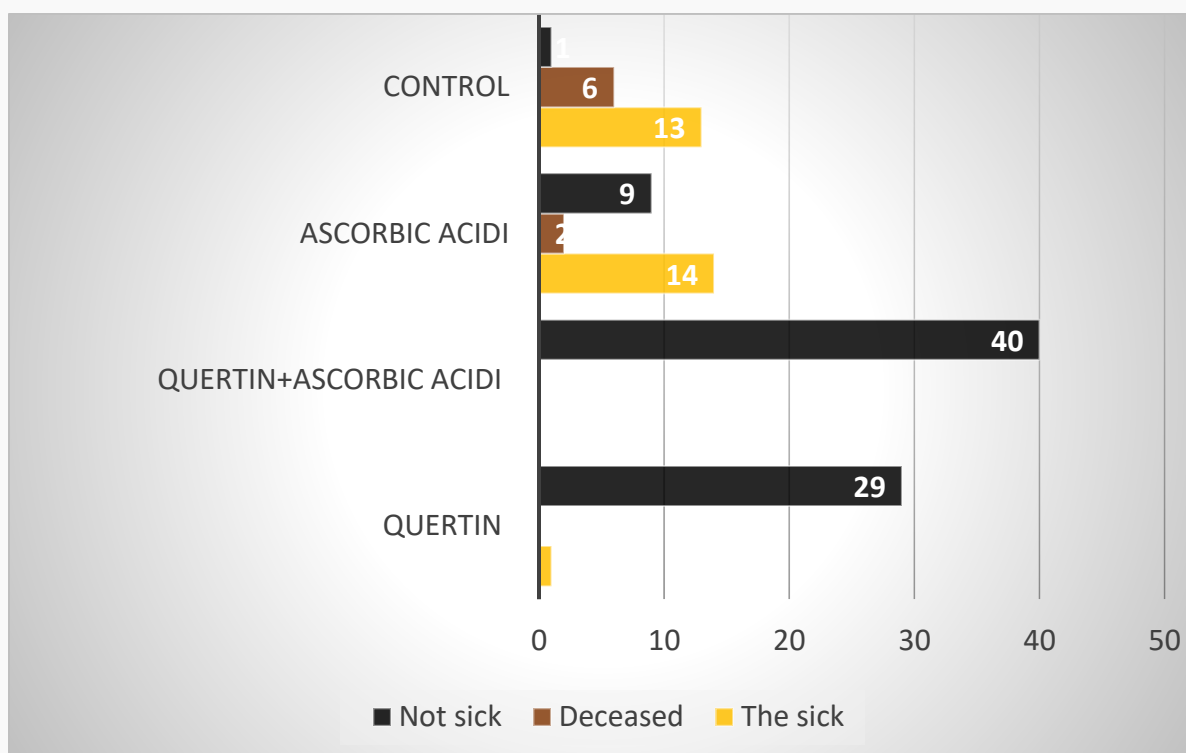
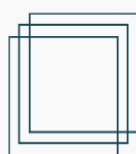


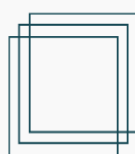
Figure 2. The level of morbidity of health workers included in the study groups.

We believe that the drug Quercetin and a combination of these drugs can enhance the antiviral effect of quercetin. The basis for this assumption is a study described in the literature that the combination of 500 mg of quercetin and vitamin C at a dose of 250 mg reduced the risk of cell damage, and also reduced the content of inflammatory markers [9].

Conclusions

So, quercetin is a substance available for treatment that can be quickly incorporated into the therapeutic process. It is assumed that the use of quercetin in the treatment of patients with COVID-19 and for the prevention of medical workers will have significant pharmacoeconomical advantages, since the cost of the studied treatment will be \$ 2 per day per patient.

Taking into account the hepatotoxic side effects of chloroquine, antiviral drugs favipiravir and remdesivir used for the treatment of COVID-19, as well as frequent complications of coronavirus infection from the cardiovascular system, we plan to study the hepatoprotective, cardioprotective, as well as nephroprotective, antioxidant and cereprotective effects of quercetin in COVID-19. Our research continues.



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