

STUDY OF THE IMPACT OF THE COVID-19 PANDEMIC ON THE EFFECTIVENESS OF TREATMENT IN CHRONIC CORONARY HEART DISEASE

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ABSTRACT

The pandemic of the new coronavirus infection COVID-19 and the quarantine measures that followed it, in particular, the self-isolation of the population, could seriously affect the quality of permanent pharmacotherapy (FT) and the adherence to it of patients with chronic non-communicable diseases. In patients with stable coronary artery disease during self-isolation during the COVID-19 pandemic and the associated lack of constant contact with the attending physician, a deterioration in adherence was revealed with an increase in the number of patients who stopped taking several or all prescribed drugs. The most pronounced negative dynamics was observed in adherence to disaggregants and statins. The leading barriers to adherence during the period of self-isolation were the fear of side effects of LP and unwillingness to take a large amount of LP for a long time.

Keywords: adherence, pharmacotherapy, COVID-19 pandemic, period of self-isolation, stable coronary artery disease, telephone survey.

INTRODUCTION

The pandemic of the new coronavirus infection (CORonaVirusDisease 2019) COVID-19 and the quarantine measures that followed it, in particular, the self-isolation of the population, have left a serious imprint on the lifestyle of people, especially those suffering from chronic non-communicable diseases (CNID). First of all, this could affect the quality of the therapy they constantly take. For certain reasons, during the COVID-19 pandemic, such patients could have a number of problems with contacting the appropriate specialist doctor, receiving or purchasing medications they constantly take (LP). A number of recently published studies have reported the occurrence of such problems in dermatological patients, in patients with autoimmune inflammatory rheumatic diseases [1,2]. The aim of the present study was to find out how the adherence to constant therapy has changed in patients with chronically stable coronary artery disease (CHD) in self-isolation during the COVID19 pandemic.

GOAL

To determine the dynamics of adherence to continuous therapy in patients with chronic coronary heart disease (CHD) in self-isolation during the COVID-19 pandemic.

MATERIAL AND METHODS

In the period from 05.05.2020 to 14.05.2020, a telephone survey was conducted to assess adherence to therapy with cardiovascular drugs during self-isolation in patients who completed participation in the ALIGN study. ALIGN (TherApy in stabLe Coronary Artery dIsease Patients According to Clinical GuideliNes) study (NCT04162561; www.ClinicalTrials.gov) is a cohort prospective observational study. In this study, in patients with stable coronary heart disease, adherence to treatment after correction of pharmacotherapy (FT) was studied in accordance with current clinical recommendations (CR), the effectiveness of this therapy and its impact on quality of life, depending on adherence indicators. The study consisted of an inclusion visit (V0) and V1, V2 visits performed 3 and 12 months after V0. The ALIGN study protocol and questionnaires have been approved by an Independent Ethics Committee. In addition, the Independent Ethics Committee reviewed and approved the execution of an additional telephone survey after the completion of the study. The study involved primary patients with proven stable coronary heart disease, whose data were included in the outpatient registry of patients with cardiovascular diseases and their risk factors. All patients gave informed consent to the use of personal data, as well as to participate in the study and surveys related to it. Adherence was assessed using an original questionnaire – the adherence scale of the National Society for Evidence-Based Pharmacotherapy (NODF). Patients who fully complied with medical recommendations regarding FT were considered committed. Any violation of the intake regimen or an independent change in the daily dose of LP was regarded as partial adherence. Patients who completely stopped taking one or more drugs were considered to be unaffected. If necessary, dichotomous division into subgroups, patients with partial adherence and non-committed patients were combined into one subgroup of non-committed patients. In addition, the participants of the telephone survey were divided into two subgroups – with a deterioration in commitment during the period of self-isolation against the background of the COVID-19 pandemic and without changes in commitment. Adherence was determined both to the whole FT as a whole (general adherence) and to the drugs of each group specifically (to the intake of disaggregants, statins, beta-blockers, etc.). It should be noted that changes in adherence were diagnosed during the period of self-isolation, and not those that occurred earlier. Of the patients included in the ALIGN study (n=71), visits V0, V1 and V2 were performed in 39 people, it was among these patients that a telephone survey was conducted during the COVID-19 pandemic. During telephone contact, adherence to the recommended cardiovascular PT (general and to drugs of individual drug groups) and its changes in self-isolation conditions were determined. The study cohort included 37 men (94.8%) and 2 women, the average age of patients was 67.6±8.5 years. The scheme of the study is shown in Fig. 1. Statistical analysis was performed using the SPSS Statistics 23.0 package (IBM, USA). For descriptive statistics of quantitative data with their normal distribution, average values and standard deviations (M±SD) were used, with a distribution other than normal, the data are presented in the form of median and interquartile range (Me [25%;75%]). Qualitative variables are presented as a percentage. The Mannawitney and Kraskel-Wallis criteria were used to compare quantitative data. For analytical statistics of qualitative indicators, Pearson's χ^2 criterion and Fisher's exact criterion (for 2×2 tables), calculation of the odds ratio (OR) with a 95% confidence interval (CI), z-criterion for comparing proportions were used.

RESULTS

The characteristics of patients who took part in a telephone survey to assess adherence are presented in Table. 1. By the end of the annual follow-up in the ALIGN (V2) study, 87.1% of patients were committed to the recommended cardiovascular PT. The dynamics of overall commitment according to the results of the NODF commitment scale during the COVID-19 pandemic is shown in Fig. 2. During the period of self-isolation, the deterioration of patients' adherence to FT was revealed. The proportion of fully committed patients decreased by a third (from 87.1% to 53.8%) due to an increase in the number of non-committed patients who stopped taking several or all recommended medications during self-isolation ($p=0.024$). Two patients (5.1%) completely stopped the recommended FT. It should be emphasized that adherence to treatment during the COVID-19 pandemic has become worse than at the time of inclusion in the ALIGN study.

The leading reasons for non-adherence to FT were fear of side effects of LP and unwillingness to take a large amount of LP for a long time. The latter reason was the reason for the complete rejection of FT in 2 patients who took part in the survey. In addition, among the reasons for the violation of adherence, patients indicated the side effects of LP, the lack of a tangible effect from treatment, polypragmasia and the high price of LP. When using the dichotomous gradation of the results of the NODF adherence scale, it was demonstrated that during the period of self-isolation, the chance of patients to be non-subject to the recommended drug treatment increases almost sixfold: $OR=5.8$; 95% CI (1.9; 18.0), $p=0.002$. A comparative analysis of subgroups with worsening adherence and without changes in adherence revealed a certain trend: the presence of higher education in patients ($p=0.067$) or percutaneous coronary intervention in the anamnesis ($p=0.063$) was presumably a protective factor associated with the absence of deterioration in adherence during self-isolation. The differences between the subgroups did not reach statistical significance, which may be due to the small number of survey participants and insufficient statistical power of the study. The remaining clinical and demographic indicators, in particular, gender, age, the presence of concomitant diseases did not have a significant impact on the dynamics of adherence during the period of self-isolation. The results of the assessment of adherence to drugs of specific drug groups are presented in Table. 2. During the period of self-isolation, a decrease in adherence to disaggregants ($p=0.047$) and statins ($p=0.055$) was revealed. The intake of beta-blockers, inhibitors of the renin-angiotensin-aldosterone system (RAAS) and dihydropyridine calcium antagonists remained unchanged. Discussion Crisis situations, including the COVID-19 pandemic, reveal new facets of the problem of adherence to the treatment of patients with various chronic diseases, including cardiovascular diseases. During the pandemic, there is no possibility of regular visits by patients to attending physicians, an increase in stressful situations and an increase in various psychological /mental disorders, which in themselves can worsen patients' adherence to prescribed therapy. Of particular relevance are the issues of drug supply to the population and the need to expand the use of telemedicine technologies [3]. To date, a limited number of studies have been performed in which adherence issues have been studied in patients with CNID during self-isolation during the COVID-19 pandemic.

The main barriers to adherence in such patients were the fear of immunosuppression in a difficult epidemiological period, insufficient provision of medicines (especially the non-

adherence of patients due to hydroxychloroquine deficiency should be noted), acute respiratory infection and side effects of LP. Nevertheless, it should be noted that the side effects of medications are one of the most frequent reasons for the cessation of FT even outside the pandemic, and do not lose their significance during the period of self-isolation. Despite this, it is obvious that with a pandemic, additional barriers of commitment arise. According to our data, during the period of self-isolation, the level of patients' adherence to taking cardiovascular drugs was lower than at the time of their inclusion in the ALIGN study. The main reasons for non-adherence, most often indicated by patients during a telephone survey, were the fear of developing side effects of LP and unwillingness to take LP for a long time. One of the possible explanations for the primacy of these reasons, among other barriers to adherence, is the lack of regular contact with a doctor during self-isolation and the resulting decrease in motivation for regular compliance with medical recommendations regarding FT. Just as in the work of Greek researchers [1], in which a telephone survey was conducted to assess the adherence of 237 psoriasis patients, we did not find significant associations between any clinical and demographic indicators and adherence disorders in patients with stable coronary heart disease during self-isolation. Nevertheless, a trend has been identified that suggests that the presence of higher education in patients ($p=0.067$) or percutaneous coronary intervention ($p=0.063$) in the anamnesis can be considered as protective factors associated with the absence of deterioration in adherence during the COVID-19 pandemic. In contrast to the results of telephone surveys [1,2], including ours, in a cross-sectional study of German authors, the opposite conclusion was made about increased adherence to cardiovascular and antidiabetic FT in the COVID-19 pandemic. This conclusion was based on analysis data on the implementation of prescriptions for cardiological and antidiabetic drugs by patients in the first quarter of 2020 compared to the same period in 2019 [4]. It was shown that the number of prescriptions for cardiovascular and antidiabetic drugs issued at the beginning of 2020 increased by 18-30%. Apparently, the use of various indirect methods of diagnosing adherence (telephone survey and analysis of the number of prescriptions written) was the reason for such a discrepancy in the results. A significant problem that arose at the beginning of the COVID-19 pandemic was the question of the possibility of continuing treatment with ACE inhibitors due to the revealed tropicity of the new coronavirus SARS-CoV-2 to the receptors of this enzyme. Nevertheless, this problem was solved promptly. According to the data obtained on the absence of a negative effect of ACE inhibitors on infection and the course of COVID-19, and on the increasing risk of cardiovascular complications with the cancellation of these drugs, leading cardiological communities issued recommendations that approved the irrationality of the cancellation of ACE inhibitors or angiotensin 2 receptor blockers in the prevention and treatment of COVID-19 in patients with cardiovascular diseases [5,6].

Conclusion. In patients with stable coronary artery disease during self-isolation during the COVID-19 pandemic and the associated lack of constant contact with the attending physician, a deterioration in adherence was revealed with an increase in the number of patients who stopped taking several or all prescribed drugs. The most pronounced negative dynamics was observed in adherence to disaggregants and statins. The leading barriers to adherence during the period of self-isolation were the fear of side effects of LP and unwillingness to take a large amount of LP for a long time.

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