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Streszczenie w języku angielskim

**The patient care with a cardiac electrotherapy device in the era of the
COVID-19 pandemic**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) is the etiological agent of coronavirus disease 2019 (COVID-19). The first cases of infection with this virus were reported in November 2019 in China. Due to the rapid spread of the infection, a pandemic state was declared by the World Health Organisation (WHO) in March 2020. Approximately 20% of cases have a severe course of the disease, and people with comorbidities, including cardiovascular disease, are at the highest risk. The high incidence rate and the risk of infection in healthcare institutions has triggered the dissemination of an alternative form of contact between medical staff and patients – telemedicine, which could play a critical role in reducing SARS-CoV2 transmission.

The aim of the thesis, which consists of two original papers and one review article, was to assess the care for the cardiac patient during the COVID-19 pandemic. The series begins with a manuscript on early telephone follow-up of patients with a cardiac implantable electronic device (CIED). The main objective of the study was to compare teleconsultation with regular in-person visits in the ambulatory clinic of implantable devices and evaluate if teleconsultations would be an adequate substitute at a time of limited in-person contact. Teleconsultations were introduced for patients without the telemonitoring of CIED. Due to the development of the pandemic, and the limited possibility of in-person contact with the patient, the National Health Fund approved the opportunity to provide treatment using the information or other communication systems. Patients were analysed for COVID-19 mortality risk factors, such as age and comorbidities. The results of the study showed that teleconsultations are well received by the patients, and it is a needed contact form during the COVID-19 pandemic. Teleconsultations in patients without remote monitoring, but with a known medical history,

allow the identification of high-risk subgroup. Patients living in areas furthest from the ambulatory clinic rated the teleconsultation higher compared to residents of Warsaw, where the clinic is located (4.9 vs 4.2). However, the study emphasized that teleconsultations will never fully replace device interrogation and a personal visit of the patient in the outpatient clinic.

The second paper focused on the evaluation of implemented telemedicine elements such as teleconsultation, telemonitoring and e-prescription functionality from the perspective of patients with CIED. During personal visits in the ambulatory clinic of implantable devices, patients completed a questionnaire evaluating the technologies provided during the SARS-CoV2 pandemic. The questionnaire consisted of 17 questions, the answers were single-choice or rating of the issue on a scale of 0 to 10, where 0 means the lowest and 10 the highest rating. The questionnaire was completed by 226 patients. Regular clinic visits during the pandemic were mainly made by patients living in the city where the ambulatory clinic was located and the least frequently by those living in the countryside ($p = 0.0158$), the furthest away. More than a third of patients (39%) had a teleconsultation before an in-person visit in the clinic, with almost all (99%) of them being satisfied. Among the respondents, only 11% of patients had a remote monitoring system for the implanted device, while 60% of patients would like to have this option. About 1/3 of patients (34.5%) would also be able to cover the additional costs associated with a remote monitoring system. The e-prescription system was used by 90% of patients, with an average score of 8.6. The study underlined that telemedicine has become an essential ingredient to ensure continuity of patient care in the era of the COVID-19 pandemic. However, there is a further need to develop telemedicine solutions in the health care system.

This review paper presents the possible late cardiovascular complications of SARS-CoV2 infection. It was highlighted that older age and comorbidities, including cardiovascular disease, significantly increase the risk of an adverse course of COVID-19. The infection, except for acute complications, can also lead to late complications.

In summary, the COVID-19 pandemic has challenged the modern world and disrupted the existing functioning of society, including the healthcare system. Telemedicine solutions became a complement, but also an alternative to traditional ambulatory visits. Such solutions made patients feel safe, had continuity of care, despite limited personal contact with medical

staff. However, telemedicine will never completely replace the in-person care of the patient, it will always be a valuable supplement.