Fiałek Bartosz, Zukow Walery. Myocardial infraction – the history of therapy prior to reperfusion. Journal of Education, Health and Sport. 2018;8(10):57-61. eISNN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.1447149
http://ojs.ukw.edu.pl/index.php/johs/article/view/6157

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part b item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 02.09.2018. Revised: 12.09.2018. Accepted: 05.10.2018.

Myocardial infraction – the history of therapy prior to reperfusion

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Abstract

The description of stenocardial ailments was presented for the first time in 1772. Until the 1950s, the patients suffering from myocardial infraction were treated with the wait-and-see attitude – they were confined to bed for 6 weeks, were not allowed to eat or to take up everyday activities on their own. It was as late as in the 1960 it was discovered that being immobilised for too long may be harmful and lead to the increase of the clotting/embolism complications. The first issue of Harrison's Principles of Internal Medicine was released in

1950 which advised the oxygen therapy, as well as pharmacotherapy (nitro-glycerine, anticoagulants) used in the severe phase of myocardial infraction. One on the breaking moments on the path of the development of care considering the patient with myocardial infraction was the introduction of CCU (Desmond Julian, 1961).

Kay words: myocardial infarction, stent,

In 1772 Wilim Heberden presented the description of stenocardial ailments, naming them *angina pectoris*. The term is present in the modern cardiology – in fact, its creation preceded the examination of pathogenesis and of the histopathological image of the described pathology [12]. Specialists were able to determine the thrombosis of coronary artery as the cause of death as early as the first half of the 19th century. It was proven by various examinations carried out on animals whose coronary arteries were purposely ligated, as well as posthumous observations on individual deceased people. In 1901, Krehl was the first person to notice that thrombosis of coronary artery does not have to necessarily lead to sudden death caused by heart issues, although it is a frequent cause of creation of heart aneurysm, scars or heart walls [13]. Hektoen proved in the 1990s that myocardial infraction is caused by a clot of the coronary artery, which is secondary to atherosclerotic changes [14]. Then, in 1910, Obrastzov and Straschesko presented a series of five patients who, before their death, showed physical features of myocardial infraction which also proved to be the cause of their death later on [15].

In 1912, James Herrick published his thesis, which had an enormous impact on the way of conducting with myocardial infraction until the 1950s. In his thesis, Herrick drew a conclusion that the main element of conducting with the above-mentioned patient should be them being confined to their bed for six weeks. Such patient should not be permitted to move, shave or eat on their own. An important part of the therapy was diet, which consisted of 1200 kcal – mostly fluid meals with low levels of salt and animal fats. It needs to be emphasised that only a small portion of the patients managed to recover to normal, despite continuing the sitting mode after being released from the hospital [16]. Herrick has had an even bigger impact on modern cardiology by introducing and popularising the electrocardiography examination (EKG) as a diagnostic instrument after a severe myocardial infraction, which was invented by Einthoven in 1902 [13]. In 1923, Wearn described the first series of clinical cases of patients with myocardial infraction. They were advised of absolutely no physical effort and limiting fluids in order to prevent a possible lung oedema, the glycosides of digitalis were introducedfor the patients suffering from stasis in the pulmonary circulation stasis caffeine and camphor were also used in treating hypotension, fainting and atrioventricular block. The nitrates were not advised as they lowered the arterial pressure. In 1928, Parkinson and Bedford introduced their experiments using morphine used in order to relieve the pain of patients suffering from myocardial infraction [13]. In 1940, French and Dock showed the description of important changes in atherosclerosis of young patients, who had died in a result of wounds and injuries without any visible symptoms of myocardial infraction [17]. The pioneer of cardiological prophylaxis is Paul Dudley who introduced his theory in 1944, which lead to the creation of Framingham Heart Study in 1948. Two year later, the first issue of Harrison's Principles of Internal Medicine is released which advises, in the case of severe myocardial infraction, oxygen therapy, nitro-glycerine administered under the tongue or anticoagulants (such as heparin or warfarin) used in order to prevent from subsequent myocardial infarction and clotting/embolism complications. This conducting actually reduces the mortality in this particular group of patients [19].

The idea that longer immobilisation of the patient might be harmful, as it resulted in considerable increase of the clotting/embolism complications, began becoming more popular in the 1960s. Because of that in cases of myocardial infractions that are not complicated, the period, in which the patient is confined to bed, was shortened to five days and the overall time

of hospitalisations to four weeks. Additionally, the patient was gradually prepared to live normally before being released from the hospital [20].

The next phase of the development of care considering the patient with myocardial infraction was introducing the coronary care units (CCU) which reduced the mortality in the first hours following the infraction from 30% (noticed in the last decade) to 15%. This phase began in 1961, when Desmond Julian released the idea of CCU in the Royal Infirmary in Edinburgh, and when Hugh Day introduced it to the common practice of the Bethany Medical Centre. Julian analysed the course of the cardiac arrest of five patients, four of which had died. The author thought the cause of therapeutic failure was the late attempt of CPU, as well as little experience connected with infractions within the team. CCU functioned according to four main rules: 1) the patients suffering from myocardial infraction were supposed to be constantly monitored with the EKG equipment, featuring an alert that would set in case of any serious arrythmias, 2) patients stayed in a specially assigned room with experienced and trained staff, as well as most modern equipment and medications, 3) the staff had to be ready for an immediate start of the CPR procedure, 4) the possibility of fast CPR and external defibrillation which, in case there were not any doctors around, were the roles of special nurses. Within five years, CCUs were introduced in the majority of hospitals in developed countries [21].

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