

Revisiting the historical periodization of cardiology in the USSR (a discourse on some aspects of the history of Russian cardiology)

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Abstract. The article continues this journal's discourse on two issues: the periodization of the history of cardiology in the Soviet Union, and the impact of cardiac surgery on establishing cardiology as an independent scientific discipline. Dividing the development of cardiology in the USSR into three periods is proposed. The first period relates to the first half of the 20th century, when cardiology evolved as a major area of research as part of the clinical practice of internal medicine. The founders of Soviet cardiology were D.D. Pletnev, G.F. Lang, N.D. Strazhesko, S.S. Zimnitsky and V.F. Zelenin. Physicians and surgeons studied issues of cardiovascular system pathology in parallel – independently of each other. The second period – the 1950–1960s – is characterized by the separation of cardiology from clinical practice of internal medicine as an independent scientific discipline. The formal indicators of institutionalization and its most important achievements are examined. The leader of cardiology at the time was A.L. Myasnikov. Cardiac surgery's role as one of the important factors that influenced the formation of cardiology in this period is demonstrated. The third period – the 1970–1980s – marked the emergence of cardiology as an independent medical profession, the creation of a system of cardiac care across the country and the Cardiology Research Center in Moscow as its scientific and methodological center. These changes are associated with E.I. Chazov. The successful development of surgical treatment for diseases of the heart and blood vessels continued; heart defects, coronary artery disease and cardiac arrhythmias became shared problems for therapists, cardiologists and surgeons. Accordingly, the main composition of patients in specialized departments of clinics and city hospitals changed. The article does not deal with further changes in cardiology in the 1990s.

Keywords: history of medicine, cardiology, cardiac surgery, periods in the history of cardiology

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In two articles, published in the *History of Medicine* journal [1, 2],¹ we proposed a new variant for the periodization of the history of national cardiology. Naturally, this led to debate. In 2015, P.M. Bogopolsky and D.A. Balalykin

¹ These articles have been written in collaboration with S.P. Glyantsev.

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published an article “On several discussion points on the interrelation of cardiology and cardiac surgery” [3]. The authors of this article correctly noted numerous unsuccessful formulations and several controversial theses in articles by V.I. Borodulin and co-authors. With regard to the unsuccessful formulations, we thank them for their participation in refining the concepts and apologize to the editorial staff and readers. However, we believe that further discussion

should not concern itself with “the words” but with the essence – namely, with two conceptual issues: 1) whether periodization is the correct expression (that is, is it justified), and 2) on the impact of cardiovascular surgery in the process of the formation of cardiology.

With respect to the first issue, we once again state our position. Our own research materials allow us to draw conclusions on the advantages of dividing the history of cardiology in the USSR into three periods. The first period relates to the first half of the 20th century. Cardiology was developed within clinical practice for internal diseases, as its most important part. During this period, views on the nature of arteriosclerosis were completely revised, a doctrine for myocardial infarction and hypertension was created, the streptococcal concept for etiology of rheumatism was proved and the doctrine of rheumatic and syphilitic heart defects was developed. The views that prevailed during this period are reflected in the classical textbooks, manuals and monographs of D.D. Pletnev (1936), G.F. Lang (1938, 1958), V.F. Zelenin (1956) and L.I. Fogelson (1935, 1951). The founders of clinical cardiology in the Soviet Union are considered to be Professor Dmitry Dmitrievich Pletnev (Moscow), the Academy of Medical Sciences (AMS) academic Georgy Fedorovich Lang (Leningrad), academic Nikolai Dmitrievich Strazhesko (Kiev), Professor Semyon Semyonovich Zimnitsky (Kazan) and the Academy of Medical Sciences academic Vladimir Filippovich Zelenin (Moscow). Issues of cardiology (cardiovascular pathology, according to the then accepted terminology) were worked on mainly in the therapeutic faculties of medical schools.

The second period (1950–1960) is characterized by the emergence of cardiology as an independent scientific discipline. Its “institutionalization” came about with the creation of specialized institutions, including the Institute of Cardiology of the USSR in Moscow, in the departments of institutes of medical professional development and departments of scientific research centers, scientific societies and journals, during cardiology congresses and conferences and the inclusion of national experts in the international research program for cardiology. Academic Alexander Leonidovich Myasnikov, a student of Lang, played a decisive role in the

formation of cardiology during this period. The Institute of Therapy, AMS, (later known as the A.L. Myasnikov Institute of Cardiology), which was led by Myasnikov, and the department of hospital therapy at the First Moscow Medical Institute (Moscow) also played a decisive role. In 1965, in the monograph “Hypertensive heart disease and atherosclerosis”, Myasnikov set out his “swan song” – a summary of 15 years of research at the Institute of Therapy. It named hypertension, atherosclerosis and their associated coronary insufficiency as “a triad of severe diseases, affecting humanity to the greatest extent today” – these diseases had become the number one medical problem.

The subject of cardiology remained paramount among academics in the therapeutic departments at the AMS – V.N. Vinogradov, M.S. Vovsi and P.E. Lukomsky (Moscow), professors B.V. Elias and A.A. Kedrov (Leningrad), B.P. Kushelevsky (Sverdlovsk) and others. The most important achievement of cardiology at this stage was its decisive review of medical tactics for the treatment of myocardial infarction at the pre-admission and post-admission hospital stages. At the suggestion of Vinogradov and Kushelevsky, specialized cardiac ambulance brigades and wards were established in the USSR. Later cardiac intensive care units were established in hospitals (the initiator and supervisor of this work at Vinogradov’s clinic was the prominent Moscow cardiologist V. Popov).

Cardiology became an independent medical specialization in the 1970s–1980s. This is the third period in the USSR’s history of cardiology. In those years, the specialization of cardiologist appeared. Cardiology clinics, departments in hospitals and offices in medical centers were opened, specialized ambulance services operated; scientific and methodical management took on the task of creating the National Cardiology Research Center (NCRC) in Moscow. It was in this way that the country’s organizational system for cardiac care was created. The initiator and leader of this scientific and organizational work was the student of and successor to Myasnikov, NCRC director and Minister of Health of the USSR academic Yevgeny Ivanovich Chazov. The main achievements of this phase include the development of methods for antithrombotic therapy in the acute phase of myocardial

infarction (including thrombolysis; Chazov and his staff), introduction into clinical practice of developed treatment regimes for chronic forms of coronary artery disease (including the use of beta-blockers, antiplatelet agents, vasodilators, cholesterol-lowering drugs) and treatment of arrhythmias (including *electrical cardioversion*).

The authors do not see a contradiction in this periodization; we believe that a “natural”, that is, an obvious, periodization has been proposed.

As for our second position, which also has a conceptual character, we have formulated anew our approach to the problem. In the first half of the 20th century (the first historical period of cardiology in the USSR) medical and surgical clinics conducted research into cardiovascular disease issues in parallel – with no cross over. The situation changed in the second and in the third historical periods of cardiology in the Soviet Union, when the nascent cardiovascular surgery became a significant factor (of course, not the only or main factor) influencing the formation of cardiology as an independent scientific discipline and medical specialization.

The development of methods for surgically treating acquired heart defects played an important role in the second stage of development of cardiology in the Soviet Union. In 1952, the Soviet Union’s first digital mitral commissurotomy was conducted by academic A.N. Bakulev, and in the 1960s, heart surgery was already being performed in more than one hundred Soviet medical institutions, and many thousands of patients were successfully operated upon. The development of indications and contraindications for surgical treatment demanded refined diagnosis of heart diseases from cardiologists. This process was reflected in the following works: surgeon A.A. Busalov and therapist A.M. Damir’s book *Mitral Stenosis in the View of Physicians and Surgeons* (1962); doctoral dissertation of Vinogradov’s colleague I.I. Sivkov – *Rheumatic mitral heart disease (clinical features, diagnosis and indications for surgical treatment)* (1962); monograph by the AMS academic I.A. Kassirsky (co-authored with G.I. Kassirsky) – *Audible symptoms of acquired heart defects* (1964) and Professor V.E. Nezlin – *Rheumatic heart disease* (1968).

The first half of the 1960s saw the beginning of the true application of surgical methods for direct

myocardial revascularization – coronary-system bypass operations. In 1964, Leningrad surgeon Professor V.I. Kolesov performed a pioneering operation – mammary-coronary bypass. His operations, as well as coronary bypass surgery, demonstrated the promise of surgical treatments for coronary heart disease (CHD; in the 21st century the improved prognosis for patients who had been operated on compared with patients who received only conservative therapy was considered proof). Since that time, cardiology and cardiovascular surgery research have focused not only on testing optimal approaches for CHD drug therapy, but also on improved methods for myocardial revascularization, discovering indications and contraindications for surgical intervention. Thus, the problem of angina pectoris and myocardial infarction had ceased to be “purely” therapeutic. Bradyarrhythmias became another area of cooperation between cardiologists and cardiovascular surgeons. In 1962, for the first time in the USSR, Bakulev’s clinic successfully carried out the implantation of a *Moskit* pacemaker in a patient with complete atrioventricular block.

In the third stage of development of cardiology in the USSR, progress in cardiovascular surgery in conjunction with new therapeutic approaches to myocardial infarction resulted in a new relationship between therapy and surgery in cardiology. This gradually led to a distinct change in the basic contingent of patients in therapeutic clinics and hospital wards. Inoperable rheumatic heart disease remained a therapeutic pathology, the bulk of the cardiology department patients began to be those suffering from acute and chronic forms of coronary artery disease, arrhythmias and heart failure. It should be noted that the pathomorphosis of diseases of the cardiovascular system influenced the nosological structure of patients in the 20th century: at the beginning of the century a significant portion of patients suffered from syphilitic mesaortitis, in the middle of the century doctors’ and researchers’ attention was focused on the problems of rheumatic heart disease. By the 1970s, the main issues facing cardiology was namely coronary disease, then renamed in CHD. The reason for this renaming was the recognition of the possibility of developing myocardial ischemia due to atherosclerosis – as a result of

other causes (metabolic, hormonal, electrolyte disturbances, etc.).

In the third stage of development of cardiology in the USSR, clinical practice began to include endovascular treatment methods for acute and chronic forms of coronary artery disease – balloon angioplasty and stenting of the coronary arteries (I.Kh. Rabkin, Y.S. Petrosyan, D.G. Iosseliani and others). Since the 1980s, the widespread use of surgical treatments significantly improved the prognosis for patients with cardiac arrhythmias. In some instances, such as in the case of Wolff-Parkinson-White syndrome (L.A. Bokeria carried out the first operation in 1981), a surgical approach was the method of choice. The problem of cardiac arrhythmias and intracardiac conduction became a problem on the borderline of cardiology and cardiovascular

surgery. We hope that with this substantial correction in the handling of the issues under consideration, opponents' objections will have been addressed.

In conclusion, we emphasize that we are not addressing issues in the history of cardiovascular surgery itself that were raised in the articles mentioned because we do not consider ourselves experts sufficiently qualified to participate in such a discussion. We would also like to deal with one particular issue: we fully agree with our opponents and are also “not inclined to exaggerate the importance of terminology and semantics in the history of applied scientific disciplines”. Moreover, we think that, for all the importance of a clear and uniform terminology, any “playing around with terms” in fact rarely advances scientific thought.

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