Commentary

Cardiovascular mortality in Russia: a comment

Sergei V. Jargin

People's Friendship University of Russia, Moscow, Russia

Correspondence to: Sergei V. Jargin. People's Friendship University of Russia, Clementovski per 6-82, Moscow 115184, Russia. Email: sjargin@mail.ru.

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It is written in the article by Dr. Kharlamov: "The cardiovascular (CV) mortality in Russia alone remains much higher than, if to exemplify, the total mortality in the U.S." (1). The causes of the high registered CV mortality in the former Soviet Union (SU) and of its increase after 1990 is evident for anatomic pathologists. Since the Soviet time, autopsy remained obligatory for all patients dying in hospitals; but the quality deteriorated especially during the 1990s. The autopsies were often made perfunctorily (2). An example: in 1998, a young pathologist (today professor) in a central clinical hospital in Moscow performed an autopsy and wrote as a post mortem diagnosis "cancer of oral mucosa" without examining the oral cavity, on the basis of a preceding cytological report mentioning atypical cells. The diagnosis was approved by a professor and head pathologist of Moscow. In the same institution, aplastic anemia was diagnosed post mortem referring to clinical data in a patient having red bone marrow in the femoral diaphysis without its histological examination and iron stain. Quality decrease in anatomic pathology and the health care in general during the 1990s coincided with the increase in the registered CV mortality. If a cause of death is not entirely clear, it has been usual to write on a death certificate: "Ischemic heart disease with cardiac insufficiency" or a similar formulation. A tendency to over-diagnose CV diseases is generally known to exist also for people dying at home and not undergoing autopsy. It can be indirectly confirmed by the following statement: "Increases and decreases in mortality related to CV diseases… but not to myocardial infarction, the proportion of which in Russian CV mortality is extremely low" (3). The following explanation seems to be probable: the diagnosis of myocardial infarction is usually based on clear clinical or morphological criteria, while ischemic or atherosclerotic heart disease with cardiac insufficiency are often used post mortem without strong evidence.

The CV mortality rates for different federal subjects (provinces) of Russia are presented in tables in the article by Dr. Kharlamov (1). Judgments on the post mortem diagnostic quality on the basis of these figures should be cautious as there may be many confounding factors. However, some conclusions can be made. The best proof of the CV mortality dependence on the autopsies is the comparatively low registered CV mortality in the provinces, where autopsy rates are low due to traditions or logistic factors (remoteness), especially in those where Islam is the prevailing confession: the rounded-up CV mortality rates per 1,000 are in Ingushetia—168, Dagestan—227, Chechnya—282; compared to the whole Russia—654. One of the most remarkable differences in CV mortality within European Russia is that between the neighboring provinces of Tula and Oryol: 738 *vs.* 1,011 (1). About 10 years ago the author visited central pathology departments in both cities. In Tula, the department was equipped with modern devices like in Western Europe; there was also foreign literature. At the same time, the equipment in Oryol was almost entirely from the Soviet times. So, the figures probably reflect the difference in the diagnostic quality. For comparison, the CV mortality rates in Moscow and Saint Petersburg, where the quality of autopsy must be relatively high, are 523 and 674, respectively. The differences between the above-named capital cities and surrounding provinces (523 *vs.* 797 and 674 *vs.* 734) are also indicative of the role of the autopsy quality (1). Certainly, the question "how much contribution of the over-diagnosis is in Russian statistics" is difficult to reply; but the contribution must be reciprocally related to the quality and reliability of the post mortem

diagnostics. Habitual post mortem over-diagnosis of CV diseases is compatible with the "absence of any substantial variation in mortality rates from neoplasms, including those related to alcohol, during the period 1984–1994" (4), as cancer is rarely diagnosed without evidence (although it did happen as exemplified in the first paragraph). Moreover, the mortality from lung cancer (requiring X-ray or autopsy for the diagnosis) in men decreased by 17 % through the period 1998–2007, while that from breast cancer, rarely remaining undiagnosed, "increased considerably" (3).

Another citation to be commented: "The changes in Russian mortality in the last few decades are unprecedented in a modern industrialized country in a peacetime" (1). Indeed, between 1984 and 1994, mortality rates in Russia underwent a rapid decline followed by a steep increase. The magnitude of the fluctuations raised questions about the validity of reported mortality rates. Apparently, an artifact was among the causes of the "huge variation in Russian mortality" (4). The mortality decrease after 1985 could have been initially overstated to highlight successes of the anti-alcohol campaign [1985–1988], which has been subsequently compensated by overstated mortality figures; more details and references are in (5).

Concerning the relatively high CV mortality in Russia, it should be additionally commented that irregular treatment of hypertension continues to be a problem (6). A regular treatment of chronic diseases using modern medications cannot be afforded by many people with low incomes. There is also a gender-related aspect, partly explaining the fact that "men have been most affected by the recent fluctuations in mortality" (4). Male adults are visibly underrepresented among patients in policlinics. Medical surveillance and regular checkups, maintained in many factories and institutions during the Soviet time, have been discontinued or reduced. There is also mistrust in some people towards medicine because of its commercialization. For these and other reasons, some people with chronic diseases stay at home and receive no adequate treatment.

In conclusion, the post mortem over-diagnosis is one of the causes of the high registered CV mortality in the former SU and of its increase in Russia after 1990. The following causes of the relatively high mortality in Russia should be pointed out: insufficient availability and quality of the modern healthcare and toxicity of some alcoholic beverages legally sold in shops (7). An improvement tendency has been noticed: the "27% 10-year decline of CV mortality" (1) might be caused both by a true mortality decline and by the reduction in the post mortem over-diagnosis of CV diseases.

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Footnote

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