IS THERE A FUTURE FOR FORENSIC STUDIES OF THE HEALTH INFORMATION?

Irina Perepechina
Moscow State University, Legal Faculty, GSP-1, Leninskye Gory, MGU, Moscow 119991, Russia

Currently forensic DNA analysis does not include a definition of medical information, because for the identification systems are selected loci, not associated with diseases. The laws of some countries stipulate the admissibility of the study only non-coding DNA. In spite of this, in the last years is quickly gaining momentum forensic DNA-phenotyping. And although in its framework study of the DNA regions associated with the diseases while is not running, there is every reason to expect that it is only a matter of time. An avalanche-like release of new information about molecular nature of diseases due to the deciphering of the human genome, the development of large-scale screening technologies, made a breakthrough in medical genetics. Adopted was the concept of "personified medicine", soon everyone may have medical genetic passport. This potentially may be a basis for the forensic research and, as the progress can not be "not seen" in such a vital sphere as the sphere of crime investigation, whether we like it or not, the question sooner or later will arise. This primarily will concern those serious crimes when there is not a suspect and the possibility of gaining any search information on the individual which left traces is critical. Could the potential value of these studies be so significant for the crime investigation in order to overcome current objections as well as to form a new legal position in respect to such kind of research?

The objective of this work is the analysis of the prospects of the forensic study of medical traits considering the current state of medical molecular research. The detection of the markers of diseases may be of forensic interest due to their predicted connection with visible signs (morphological, functional or behavioral) or to the usefulness of the data for the search of the person at certain medical records. Fundamentally, the examination of genes associated with the diseases in forensic objects is possible due to the opportunity of the analysis of short sequences (SNPs, STRs). However, the value depends on the degree of the accuracy of the prediction of the disease which depends not only on the mutations but also on their phenotyping. This is especially problematic in case of multifactorial diseases which are most common. The most detectable are monogenic diseases (the accuracy of the identification of a mutation is between 90 and 100%) which affect about 1% of the population. By virtue of the severity of many of these diseases persons with their clinical manifestations are unlikely to become perpetrators. Yet a number of monogenic diseases may have forensic value, especially in some circumstances (including, in particular, the study of the remains of unknown persons). The accuracy of the identification of mutations in multifactorial diseases is currently 10-90% [see Baranov V.C. et al., 2009]. In a forensic study the accuracy of the prediction is to be lower than in a medical study because of the inability to examine besides DNA other kind of information (anamnestic, clinical, biochemical) available in a medical research. Nevertheless, the rapid development of science allows to expect a substantial increase of the prognostic value of genetic markers and, thus, in the future the study of medical DNA information may be of interest to the crime investigation. This requires timely foresight of such research and their strict legal regulation. ⌘