

ДИСКУСІЙНІ, АКТУАЛЬНІ ТА ПРОБЛЕМНІ ПИТАННЯ

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THE PERSPECTIVE DIRECTIVES OF FORENSIC ODONTOLOGY

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Introduction. It is well known that dentistry is a branch of medicine that in the first place should provide a sufficient treatment for a segment of population health as integral part of social, economic and cultural development of society. Further development of dental services in today's environment requires new approaches and principles of management and organization, as the existing system of quality assessment and dental care is not conducive to the efficient work of the medical staff, resulting in a large number of conflicts between dentists and patients, culminating violation civil and criminal actions.

In this case, the individual links in dental practice serving as forensic evidences able to provide competent interpretation and evaluation of dental status of the person, evaluation of age and peer review for changes in the teeth-jaw system, resulting from disease and injuries of the teeth and their treatment, or due to man-made changes [1, 4]. Thus, the identification of signs acquired by iatrogenic interventions include cavities, fillings, inlays, crowns, pin teeth, bridges, artificial teeth and dentures. Unique characteristic features that appear in the topography of defects, abnormalities, cavities, iatrogenic interventions and major dental fillings materials and orthopedic structures are keys in addressing research in forensic dentistry [2, 3, 5]. The International Organization for Forensic Odonto-Stomatology (IOFOS) highlights the following branches of forensic dentistry: diagnosis, analysis, assessment damages of teeth-jaw system, soft and hard tissues of the oral cavity; identification of the living and deceased persons, victims of mass disasters and criminal offenses; analysis and evaluation of bites, traces of biological material of oral cavity in cases of sexual crimes, animal attack, brutal maltreatment and self-defense [7].

Analysis of the literature indicates that human development is inevitably accompanied by disasters that have resulted in massive loss of human life. Even with a stable geopolitical situation in the world is not ruled out the possibility of local armed conflicts, acts of terrorism, technological disasters. Indeed, as indicated by domestic scientists over the past 10 years in Ukraine noted a sharp increase in cases of man-made disasters: the destruction of residential buildings in the cities of Dnipropetrovsk and Lviv, explosion of gas in Yalta, accidents in coal mines of Donetsk and Lugansk

regions; air crash in Sknuliv, revolutionary events on Independence Square and military aggression in the Crimea, and many others. Thus, as the expert practice, the investigation raises questions of identification by dental status, since the latter is self-sufficient source for forensic examinations to determine the identity, age, the quality of dental care and to resolve other issues.

In the current world and European forensic science practice, there is a section "Forensic Dentistry" and specialists are called forensic odontologists since 1972 [6, 8, 9]. In Ukraine there is no such specialty, and section involved in forensic dentistry provided by forensic experts. However, given the fact that modern dental industry for the past 20 years has made technological and scientific breakthrough and continues to evolve, the methods that are in service of forensic medicine and forensic practice in our country significantly out of date, not structured and do not focus on modern methods of dental treatment of patients, which are important characteristic features.

Moreover, analysis of commission examination revealed that the cause of conflict between the patient and the dentist are mostly dissatisfaction with the quality of treatment, lack of technical equipment of medical institutions of practical training, performing complex interference in violation of manufacturing technology, low quality of dental materials, and special attention drawn to the lack of standards for evaluating the quality of dental services, and negligent design of medical records and so on [10, 11]. Accordingly, there are questions of legal liability regarding improper performance of their dentists professional duties, which in turn leads to the creation of civil and criminal cases and executing the commission of forensic medical examinations for the purpose of law enforcement authorities information of medical and biological nature.

As the founder of forensic dentistry professor T. Solheim identification of individuals by dental status along with DNA analysis are the main methods used in massive loss of human life, as evidenced by the results of identification of persons after the tsunami in Thailand in 2004 - 97.2 % were identified by most dental status [13]. However, an unsolved problem in scientific terms, as we well as in developed countries, is the identification of individuals with a modified dental status as a result of comprehensive dental treatment. Mass deaths in emergency situations necessitates carrying amount of the relevant forensic investigations to identify individuals and to determine the cause of death, the type and formation mechanism of injury, time of death and so on. Conducting examinations in the presence of numerous casualties, often faced with significant injuries on the corpses of the dead, which leads to a 15% loss of significant features. Often, this contributes to the lack of potential feasibility of identification of persons in some regional bureau of forensic medical examination due to lack of personnel, laboratory (including DNA) equipment [15].

Thus, the investigation raises questions of dental status as self-sufficient source for comprehensive forensic medical examinations for the purpose of identification.

At present, the global forensic dentistry developing under the auspices of the four major organizations: Bureau of Legal Dentistry (BOLD), American Board of Forensic Odontology (ABFO), American Society of Forensic Odontology (ASFO)

and the International Organization of Forensic Odonto-Stomatology (IOFOS). However, most European countries have their own national judicial organizations dentistry, such as British Association of Forensic Odontology (BAFO) or its counterpart in Australia - Australian Society of Forensic Odontology (AuSFO). In addition, the issues involved in forensic dentistry as independent research institutes and scientific-practical centers and departments of major scientific and research centers of forensic science faculties of universities, bureau of forensic medical examination.

Objective: to analyze present system of dental identification and actual problems of forensic dentistry for objective argumentation of development of forensic odontology in Ukraine.

Materials and methods. Forensic odontologists determine individual characteristics that relate to the skull and teeth-jaw system, in order to determine age, sex, status and origin of the individual through a full analysis of the dental arches to compare unidentified and missing people. A major drawback is the lack of skeletal remains soft and connective tissue to hold the tooth. According to expert practice in Europe, the U.S. and others developed countries, reliable records are available from dentist, especially if the patients carried a sufficient number of medical manipulations as endodontic, surgical, orthopedic and orthodontic treatment. In this case, the full track list consists of :

1. Digital X-ray
2. Laboratory and diagnostic models
3. Photographs of the face and dentition
4. A dental tables and/or description of the place of treatment and materials [14].

The dental documentation can include both planned and ongoing treatment. But sometimes the treatment is recorded incorrectly due to busy dentists. On the other hand, an incorrect entry that does not exist - can prevent the identification procedure, resulting in its negative .

However, as you know, way of implementation of dental manipulations is through the introduction of a range of specific methods and techniques that allow and depending on the technological level, accurately and efficiently identify a range of macro-and macroscopic features as individual teeth, dentition, jaws, etc. The latter serves as the basis of identification system for individual's dental status. Forensic dentistry, like other branches of medicine, looking for a "gold standard" - methods of identification, which would be based on terms of invariant under physiological and pathological processes inherent in the body, or intentional change in dental status in order to avoid legal proceedings. In the European Union the current stage of identification of individuals by dental status based on computer comparison of ciphers and codes of odontology cards as result of iatrogenic intervention. However, their use is possible only with a slight change of dental status in the presence of possible number of common objects in a comparative study of record at the time of treatment and the patient at the time of its identification as a victim.

At the present time these known methods and database computer identification of

persons by dental status, which are mainly used in the United States, Canada, European Union countries:

- CAPMI: Computer Assisted Post Mortem Identification
- WINID: System for matching missing and unidentified persons
- NCIC2000: National Criminal Information Center
- NDIR: National Dental Image Repository
- NamUs: National Missing and Unidentified System
- VICTIMS: Victim information, Catalog, Tracking and Image System
- NAMPN: North American Missing Persons Network
- DOE: Network of Missing Persons
- EDAN: Everyone deserves a name
- FLUIDDB: Florida Unidentified Deceased Data Base
- IDIS: Intelligent Dental Identification System
- CAMP: California Missing Persons
- ADIS: Automated Dental Identification System
- LOKATOR
- INTERPOL DVI: Disaster Victim Identification
- CPIC: Canadian Police Information Centre Outside Agencies
- NCMA: National Center for Missing Adults
- NCMEC: National Center for Missing and Exploited Children.

Thus, as shown above, the use of computer tools for identification in forensic dentistry began its development in the U.S. of CAMPI and WinID and continued its development of the latest development - the program ADIS (Automated Dental Identification System) - an analog automatic fingerprint systems. Among the known methods of computer identification by dental status in the EU is using DVI (Disaster Victim Identification), which is used in determining Interpol and identification of deceased persons. The principle of this program is to comparison reports (post mortem and ante mortem), which are entered into the program as a cipher for each tooth and has further information . However, a major drawback and disadvantage of the program is the need to contribute to the database dental status codes manually, which in turn increases the possibility of error in determining the status of each individual tooth and all the teeth- jaw apparatus.

At the present stage of development of forensic analysis and identification of dental there are a number of unsolved problems. One of these - a definition of a person by means of identification results of implantology treatment (identification of a person by intraosseous dental implants), used in the treatment of dentition defects. Long-term positive effects of dental implants led to the creation of numerous types of implants, the peak of which Europe accounts for 1991 - 2000 years. The use of prosthetic treatment based on dental implants, especially in the absence of teeth, often makes impossible objective identification of the dental status of the victims without the use of special equipment. Thus, non-removable prosthetics relying on intraosseous dental implants may be mistakenly identified as the crown or tooth root own. Subsequently, this leads

to inconsistent data received by judicial odontologist and will create “not explicable differences” with the medical records of the patient.

Present age estimation techniques does not provide for effective use in the presence of pathology of hard tissues of teeth, which should be solved in short-terms of development [12].

In modern dental industry pay much attention to studying the effect of different orthodontic designs on periodontal tissues, and for the latter reaction constant mechanical stimulus. A large number of treatment methods and materials aimed at addressing the issue of bone tissue regeneration in the conservation and restoration of bone volume and prevent further degradation that actually demonstrates the relevance of this problem. Therefore, further study of structural change requires accurate registration, accurate calculation and evaluation of physiological and pathological processes tooth- jaw apparatus in conditions of atrophy.

Another difficulty in applying a single standard regarding consistency with dental evidence is the fact that it is inappropriate to consider the radiographic and dental radiographic evidence not in the same way. One unique feature may be crucial for positive identification, while some common characteristics may remain inconclusive.

Therefore, a systematic approach to develop new objective methods and identification of the main results of radiographic studies is an important task as dentistry and forensic medicine.

Results and discussion. Thus, as can be seen from the section in this review of the literature, in the world widely implemented methods of identifying individuals for dental status. Therefore, relevant and timely research challenge is to design and experimental study of effective methods of identifying individuals by dental status, organization and conduct forensic examinations of dental guidance related to assisting law enforcement agencies in dealing with controversial issues of medical and biological nature.

Conclusion. Details of the criteria for the identification dental status during peer review of morphological and functional changes in the teeth-jaw system, outputs and outcomes of dental treatment and rehabilitation of affected persons based on practical studies in Ukraine is extremely limited, and among foreign sources and there are only a few separate message. It also identifies a lack of solving development problem, highlights its relevance for both the theory and practice of dentistry and forensic medicine. Categorization, classification and systematization of foreign dental forensic achievements due to the Ukrainian standards of providing dental care will be important goal for further development of Ukrainian forensic odontology and it’s integration into a global computerized system of person identification by dental status.

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ОРГАНИЗАЦИЯ СУДЕБНО-МЕДИЦИНСКОЙ СЛУЖБЫ РЕСПУБЛИКИ МОЛДОВА

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Резюме: Данная статья содержит краткий исторический очерк о формировании Центра судебной медицины Республики Молдова в середине 20-го века. В основном, представлена организационная структура судебно-медицинской