A74 A Multidisciplinary Protocol to Assess Chronological Age of Unidentified Migrants

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After attending this presentation, attendees will understand the role of forensic sciences in age estimation and the effectiveness of the scientific methods used to correlate biological and chronological age.

This presentation will impact the forensic science community by demonstrating the importance of a multidisciplinary approach in the age estimation of unidentified migrants to minimize errors and complaints.

In Italy, unidentified migrants usually claim to be underage because minors are processed through the juvenile system, where detention is not mandatory. In addition, unaccompanied minors will often have access to educational programs and may be granted a residency permit. In this scenario, the use of age estimation techniques is fundamental. There are several methods that correlate biological and chronological age. They are mostly based on the evaluation of the maturity of hands and wrist bones, teeth and clavicles.[1-5] In the forensic scientific community, there is widely held agreement regarding the use of a combination of these methods to reach the most accurate estimation.[6]

For these reasons, the city of Turin, the local health authority, and the prosecutor's office defined a formal multidisciplinary investigation protocol for age estimation. After the fingerprint pattern is captured as a digital image, a Unique Identification Code (UIC) is assigned; the acquisition of the informed consent is performed, then weight, height, dental formulas, and other clinical findings (secondary sex characteristics, scars, and tattoos) are recorded. Radiographs of the left hand and eventually the Orthopantomogram (OPG) are obtained. The age estimation is performed by the conventional methods for skeletal and dental formulas. The data, associated with the UIC, are reported in the final certification that is delivered to the officers and finally stored in a national database.

This study reports a retrospective analysis of the data collected during the employment of the protocol described above. From July 2014 to July 2017, 458 visits were conducted. Overall, 383 were male and 75 were female. The geographical origins were heterogeneous, mainly from sub-Saharan Africa (Nigeria 17.03%, Senegal 16.81%, Mali 8.3%, Guinea 8.3%, Gabon 7%, and Ivory Coast 6.55%). The mean declared age was 16.94 years (Standard Deviation (SD) ±2.05). The mean Body Mass Index (BMI) was 21.55 (SD±2.42). The languages used to obtain the consent were principally English, Italian, and French. In only one case did the person deny consent to a medical examination. There were 317 adults, and the remaining 141 were underage. In 195 cases, it was necessary to utilize the OPG. In 21 cases, the age estimation obtained with the evaluation of the left-hand X-ray was not consistent with the estimation obtained with methods based on tooth evaluation. In fact, at the same time, these 21 migrants were identified as adult using the evaluation of the left-hand X-ray and as underage considering the methods based on tooth examination. For this reason, in accordance with Italian law, they were considered underage.

The results reported above reveal that this diagnostic process provides accurate results because it is based on the combination of different expert opinions (medical examiner, dentist, and radiologist); however, in order to reach this result, it is necessary to employ well-trained clinicians. They should possess extensive knowledge of the different scientific methods widely used to correlate biological and chronological age in the forensic community. Besides, if the results derived by the application of different methods are not consistent, the clinicians should be capable of understanding and communicating them to the officers and prosecutor.

Finally, this protocol is widely accepted by unidentified migrants, since more than 99% of the subjects agreed to undergo the medical examination. It consists of low-cost procedures that are not harmful to health because the association between fingerprint patterns, the UIC, and the final certification (stored in a national database) determine the reduction of risks associated with exposing the subject to more X-rays and medical examinations, if arrested again. In fact, this presentation should serve as a stimulus to heighten the importance of using standardized procedures in age estimation in order to reduce risks and avoid errors.

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Age Estimation, Illegal Migration, Personal Identification

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