Age estimation in undocumented migrant adolescents: Medical response to judicial authorities

Estimation de l’âge des adolescents migrants : réponse médicale aux autorités judiciaires

Economic globalisation has been associated with a rise of cross-border migration in Europe [1]. Courts demand appropriate medical tests aimed at age estimation of supposed minors without documentation [2]. Determining the age of foreign adolescents or young adults is pivotal when judicial authorities are involved in defining the rights and protection afforded by law and the conditions in which adolescents may be detained in police custody if they are under suspicion. A January 2014 guideline from the French Public Health Council (Haut conseil de la santé publique) highlighted a series of concerns regarding the age estimation of unaccompanied migrant adolescents [3]. No medical test or group of tests allows the exact chronological age of a human being to be determined [2]. Guidelines for age estimation have been proposed and are based on the combination of clinical, skeletal, and dental examinations [2]. Due to the scarcity of reference data obtained from unaccompanied adolescents, and possible differences that may exist between different migrant populations and existing data from healthy European individuals of known age, age estimates suffer from large uncertainties.

This must be taken into account by the medical response: a forensic estimation must emphasize the whole range of possible values [4]. Estimates expressed as single ages or rough age ranges are unfair to the examined person. Moreover, neglecting the alleged age of the examined individual in forensic responses is a matter of concern [3,4]. As magnetic resonance imaging or ultrasound techniques have not proved their accuracy and reliability in age estimation [5,6], the Greulich and Pyle atlas, based on hand and wrist X-rays, has been the most widely used reference in age estimation until now. It provides the basis for correlation tables between chronological and skeletal ages [7]. Such tables can provide estimates of the probabilities P(S/C) of skeletal age (S) given chronological age (C) for a given population. They allow to test for the compatibility of an alleged age with chronological age. To give an example, let us start from a set of published tables concerning Caucasian boys [7,8]. These sets of data do not present significant differences and can thus be pooled. For chronological age 16 years, seven subjects of 21 have been considered to be 18 years old or older with respect to their skeletal age. Hence, the probability of wrongly detecting penal majority is about 0.26. The probability of wrongly determining an age over 18 is as high as 0.33 for chronological age 17 years. Estimating the probability P(C/S) of a chronological age given a skeletal age is a more challenging question which requires to estimate the probabilities P(C) of chronological ages before any medical test, taking only into account that the specificity of the population submitted to the medico-legal expert results from the whole set of previous investigations. For this estimation, the forensic expert can use X-rays previously obtained from a similar population, i.e. undocumented adolescents submitted to the expert, which provides information about the probabilities P(S). A statistical method developed by Caussinos and Courceau allows to pass from this information to the estimation of P(C) [9]. It was first used in paleodemography [9,10] but can be adapted to the present framework: the method starts from the distribution of the alleged ages and...

FIGURE 1
Density of the probability that a male subject be of chronological age 18 or over, given that his skeletal age is 18 or over

The central red line marks the median (0.90) while the other two correspond to the 2.5% (0.82) and the 97.5% (0.95) quantiles, i.e. to the 95% credibility interval.
corrects it to reach estimates of P(C). It gives a point estimate of the probability P(C/S), as well as the whole probability distribution of this parameter (as its posterior distribution within a Bayesian framework) that can be summarized by quantiles or credibility intervals (Figure 1).

In conclusion, we propose that the medical response in forensic age estimation could be expressed as a probability distribution and we provide a method to reach this goal. By the way it estimates the probabilities P(C), the proposed option takes into account the time when the medico-legal expert intervenes in the investigation process. This option, in accordance with a basic ethical practice in medicine, also allows the examined subjects' position regarding their age to be partly taken into account.

Disclosure of interest: the authors declare that they have no conflicts of interest concerning this article.

References


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Received 14 April 2014
Accepted 3 July 2014
Available online: 17 December 2014

http://dx.doi.org/10.1016/j.ijpm.2014.07.017 © 2014 Elsevier Masson SAS. All rights reserved.

Inefficacy of plasma exchanges associated to rituximab in refractory obstetrical antiphospholipid syndrome

Inefficacité des échanges plasmatiques associés au rituximab dans le syndrome des antiphospholipides réfractaire

Obstetrical antiphospholipid syndrome (oAPS) associates the presence of pregnancy morbidity and antiphospholipid antibodies (aPL). The conventional treatment with low-dose aspirin and low-weight molecular heparin is highly effective, but in few cases oAPS may be refractory [1]. In these cases, second line treatments, including plasma exchange have been used. The rational behind aphaeretic treatments would be the removal of aPL, whose detrimental role seems due to the interference of trophotroph invasive and placentation [2]. Several reports showed the efficacy of rituximab in APS, but data in oAPS are lacking. We present the first case of refractory oAPS treated by the association of rituximab and plasma exchanges during pregnancy.

Case report

A 27-year-old woman with the diagnosis of mild articular lupus well-controlled by hydroxychloroquine was referred for pregnancy morbidity. She presented a foetal death at 15th weeks of gestation during her first pregnancy and persistent lupus anticoagulant (LA) and anticardiolipin IgG (aCL) antibodies were detected. She experienced another foetal death at 19 weeks and a pregnancy loss at 24 weeks due to severe preeclampsia and fetal growth restriction, despite treatment associating low-dose aspirin (100 mg/day), prednisone (10 mg/day), hydroxychloroquine (400 mg/day), low-molecular weight heparin (enoxaparine 6000 UI every 12 hours) and monthly intravenous immunoglobulins (1 kg). She was referred again pregnant at 6 weeks and the previously described treatment was started, to

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