

sugammadex, is considered an attractive alternative in those cases where succinylcholine is not recommended.⁸

Lastly, with reference to the study of Martínez-Amorós et al.¹ regarding cognitive alterations associated with anaesthetic drugs, we want to state that much research^{10,11} is being done applying a bispectral index monitoring, a consciousness or depth of anaesthesia monitor. Although it is still not possible to establish a parallelism between post-ECT values and the awakening time, it is certain that a good correlation between the bispectral index values before ECT and the duration of the motor seizure activity and the electroencephalography has been observed.¹⁰ On the other hand, the baseline values of the bispectral index before ECT are predictors of seizure duration and intraoperative¹¹ awakening time. This would enable an adequate dose adjustment, thus avoiding drug-induced cognitive impairment and obtaining seizures of therapeutic efficacy.¹¹

A multidisciplinary approach between psychiatrists and anaesthesiologists, including these new contributions, could offer better clinical outcomes and a better safety profile in ECT.

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On the use of Winters' formula in chronic metabolic acidosis[☆]



Sobre el uso de la fórmula de Winters en la acidosis metabólica crónica

Dear Sir,

We have read with great interest the letter published in this Journal by Rubio et al.,¹ and we would like to expound briefly our ideas on his comments.

Upon observing the value of HCO₃, Rubio et al., calculated the expected value of pCO₂ by using the famous Winters' formula,² which consists of a linear regression

with a slope of 1.5 and an interception of 8.3. Although still widely used, the Winters' formula was proposed in the sixties. There is a more recent formula, which is a contribution made by Bushinsky et al.,³ who argued that the decrease in pCO₂ should be predicted by multiplying the decrease in HCO₃ by the factor 1.2. The relationship between pCO₂ and HCO₃ proposed by Bushinsky et al., may be found in many current textbooks; see, for example, Du Bose.^{4,5}

Nevertheless, these two formulas are not necessarily in conflict. In order to prove this, let us consider the normal values of HCO₃, pCO₂, namely 24 mEq/L, 40 mmHg, respectively. By introducing these numbers into the formula of Bushinsky et al., the formula reduces to the equation pCO₂ = 1.2 × HCO₃ + 11.2, that is to say, a linear regression with a slope of 1.2, an intersection of 11.2, which is not that different from Winters' regression.

Moreover, the Winters' formula was derived from a population where the value of HCO₃ was close to 9.9 mEq/L, while Bushinsky et al., analysed a wider range of HCO₃

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values. Thanks to a more detailed statistical analysis, Bushinsky et al.³ show that, by restricting the range of HCO_3 values to a maximum of 10 mEq/L, the slope of the linear regression acquires a value of 1.5 (exactly the same slope reported by Winters), while the slope reaches 1.2 for values of HCO_3 between 10.1 and 25 mEq/L.

To summarise, in our opinion, the more accurate way to predict the expected value of pCO_2 in chronic metabolic acidosis, and hence to correctly deduce the presence of mixed acid-base disorders, is by using different formulae according to the range of HCO_3 values. Therefore, if the value of HCO_3 is greater than 10 mEq/L, as it usually happens, Bushinsky's formula should be considered. The use of Winters' formula seems appropriate only for lower values of HCO_3 .

For these reasons, in the cases reported by Rubio et al., where the value of HCO_3 is much greater than 10 mEq/L, although the use of Winters' formula leads to the correct diagnosis (i.e., mixed acidosis), we conclude that a more orthodox approach would be to resort to the formulae of Bushinsky et al.

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Suicides and forensic pathology sources in Spain[☆]



Suicidios y fuentes médico-forenses en España

Dear Sir:

We have carefully read the Giner and Guija article about the disparity regarding the number of deaths due to suicide, which exists between the Instituto Nacional de Estadística (INE) [National Statistics Institute] and the Institutos de Medicina Legal (IML) [Legal Medicine Institutes] of Spain¹; we share their opinion in relation to the difficulties in information flows and the need to continue improving the cause-of-death recording system we share. Although the authors assume that the forensic pathology sources do not provide more valid data than the official statistics, in our opinion, their observations are compatible with literature on the topic, which prefers the former as standard of reference as far as mortality due to suicide is concerned.²

As regards methodology, they suggest the use of an indicator they call "number of provincial identified suicides" (NPIS) and define it as "the highest number of suicides in a province and year", either from the INE or the corresponding IML. This indicator is based on the assumption that "it is unlikely that suicides which [are] not such are [recorded]". However, it has been verified that there is an incorrect record regarding suicide because of deaths due to other causes, such as unintended falls.³ On the other hand, even if both the INE and the IML data were equally comprehensive and valid, slight discrepancies in their totals

could be expected, since the first corresponds to Spanish residents who died in Spanish territory according to the province of residence, and the second to all judicial deaths which occurred in each province, regardless of nationality and place of residence, which is a point we have already had the opportunity to point out before.⁴

Regarding the results, data included in Table 2 of the Giner and Guija article are analysed taking into account only the values corresponding to the 34 provinces for which there are both INE and IML data available in each and every of the five years of study, observing as follows (Fig. 1):

- As expected, given the known underestimation of mortality due to suicide in the official mortality statistics,^{3,5} the INE data generally show a lower number of cases than the IML data. Globally, IML sources provide more cases than the INE every year, with annual differences ranging from a minimum of 9.3% in 2006 to a maximum of 18.7% in 2010.
- The INE and IML data show different tendencies in terms of progress in mortality due to suicide, an aspect which is very relevant in public health⁶: according to the INE, the number of deaths must have suffered significant annual variations in 2010 to be positioned under the 2006 values; instead, the IML data would reflect a sustained increase from 2006 to 2008, and a decreasing tendency from such year onwards.

Finally, we would like to draw the attention to the fact that in Spain, both scientific works and forensic pathology sources-based information systems use *ad hoc* access methods or knowledge directly from the result of the post-mortem examination of the body.^{2,7–9} This is due to the scarce development of IML internal records, a point we had already highlighted eight years ago.⁷ The Giner and Guija article portrays this situation, given that when

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