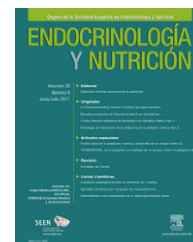




ENDOCRINOLOGÍA Y NUTRICIÓN

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EDITORIAL

Eradication of iodine deficiency in Spain. Close, but not there yet[☆]

Erradicación de la deficiencia de yodo en España. Cerca, pero no en la meta

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Iodine deficiency (ID) in Spain, well documented since the 1960s,¹ has persisted with different grades of intensity for more than four decades. In 2004, the World Health Organization (WHO) included Spain among the countries with optimum iodine nutrition based on studies conducted during the previous five years on schoolchildren and adults from various regions.²

It is very difficult to summarize the most relevant facts leading to this substantial progress in ID correction in Spain, and one runs the risk of inadvertently omitting some of them. In addition to the prolonged and continuous activity of the working group on disorders related to iodine deficiency (IDDs)³ of the Spanish Society of Endocrinology and Nutrition, various clinical and epidemiological research findings reported in the international literature during the past decade have confirmed the significance of ID, thus promoting the search for measures to correct it. Thus, the demonstration of deficient psychoneurological development in children born to mothers with low thyroxine levels during pregnancy secondary to maternal hypothyroidism^{4,5} or ID during pregnancy^{6,7} supported the results of basic studies^{8,9}

and led virtually the entire Spanish medical community to assume the significance of optimum nutritional status and thyroid function in pregnant women. The gradual increase in understanding and acceptance by a large number of physicians of the benefits of iodine prophylaxis and adequate transmission of this information to the population through educational health campaigns has significantly contributed to ID correction in Spain. Finally, the availability on the National Health Service of potassium iodide supplements to correct ID in the pregnant population since 2005¹⁰ has not only made it possible to improve the nutritional iodine status of pregnant women, but has very probably induced in a great part of this population group an increased awareness of the need for taking measures aimed at achieving an adequate nutritional iodine status for the whole family.

At the annual meeting of the IDD work group held in Barcelona in December 2011, two studies concerning the current nutritional iodine status of the Spanish population were presented. Both of them were led by group members. Dr. Vila reported that the Tirokid¹¹ study, conducted on almost 2000 children from all over Spain aged between 6 and 7 years, had found median urinary iodine levels of 173 µg/L. Dr. Soriguer, in turn, reported that the Di@betes¹² study, conducted on an adult population recruited from 16 of the 17 Spanish autonomous communities, had found median urinary iodine levels of 117 µg/L. The Arena and Emparanza study,¹³ which reported median urinary iodine values of 127 µg/L in a group of healthy children aged 6 months to 3 years, was published at the beginning of the year. Thus, the results of

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[◇] The composition of the task force on disorders related to iodine deficiency and thyroid dysfunction is included in [Appendix 1](#).

these recent studies conducted on different groups of the Spanish population, by finding median urinary iodine levels higher than 100 µg/L in all cases would appear to confirm that Spain continues to be among the countries with optimum iodine nutrition. However, some data from these same studies should temper our optimism, so that we do not make the false assumption that ID has definitively been eradicated in Spain. The proportions of children of pre-school age¹³ and adults¹² with urinary iodine levels less than 100 µg/L, close to 40%, and the reported use of iodinated salt in less than 50% of households suggest that the eradication of ID is far from being achieved according to the criteria established by the WHO and other international organizations.¹⁴ These include, amongst others, the availability and use of iodinated salt in more than 90% of households.

In this issue of *Endocrinología y Nutrición*, Dr. Arrizabalaga et al.,¹⁵ in their study on changes over time in the nutritional iodine status of schoolchildren from the Basque Country, found progressive correction of ID, recording an increase in median urinary iodine levels from 65 µg/L in the 1992 to 147 µg/L in the 2005 Nutrition Survey. The analysis performed by the authors on the factors influencing iodine intake increase in the Basque Country is of particular interest. Careful verification of the type of salt used at households by reading the label or measuring iodine contents of the salt pack available at the surveyed household showed a low percentage for the use of iodinated salt (IS), slightly above 50%, similar to that reported by other studies.¹⁶ Although urinary iodine levels were higher in schoolchildren taking IS than in those taking unfortified salt, normalization of iodine intake occurred in both groups. The authors therefore suggest that other dietary sources of iodine have contributed to the correction of ID in the Basque Country. The marked seasonal pattern seen in the urinary iodine levels of schoolchildren points to the consumption of iodine-rich milk and dairy products as one of the most important factors implicated in the increased iodine intake recorded in their study. Arena and Emparanza¹³ reached similar conclusions after finding an adequate nutritional iodine status in children of pre-school age in their study, despite the fact that IS was routinely used in less than 40% of households.

Various prior studies^{17,18} had already shown a close relationship between the consumption of dairy products and the urinary iodine levels found in school populations. On the other hand, the significant iodine content found in cow's milk consumed in Spain,¹⁹ higher than 200 µg/L in all cases, supports the idea that milk intake is very probably one of the factors which contributes most significantly to ID correction in our country. Similarly to what happened in the United Kingdom during the 1980s and 1990s, it is likely that another "accidental triumph of public health"²⁰ has occurred in Spain, with increased iodine intake being achieved through an increase, neither promoted nor controlled, in the consumption of iodine-rich milk and dairy products.

The WHO and other international organizations¹⁴ recommend universal iodination, i.e. iodination of any salt intended for human and animal use, including salt used by the food industry, as the best way to guarantee adequate iodine provision in the diet. The correction of ID through other dietary sources of iodine, such as milk and dairy products, has the disadvantage of the lack of

control of the iodine entering the human food chain.²¹ In this regard, changes in iodine content in milk, secondary to changes in stock practices have resulted in the reappearance of ID in previously iodine-sufficient countries such as Australia.²² In the United Kingdom, where iodine provision in milk had allowed for the recommended daily requirements of iodine being achieved²⁰ despite the lack of salt iodination programs, ID has very recently reappeared,²³ and this country is currently among the countries with the highest numbers of schoolchildren with inadequate iodine intake.²⁴ The evolution of nutritional iodine status in these countries would appear to confirm the lack of sustainability and the risks associated with this "silent" or uncontrolled iodine prophylaxis, which has repeatedly been denounced in Spain.^{25,26}

Although we can congratulate ourselves on the adequate nutritional iodine status achieved by Spanish schoolchildren and adults, other population groups such as pregnant women are very likely to still have ID.²⁷ The increased availability and consumption of iodine-rich foods, mainly milk and dairy products, has made an uncontrolled contribution to the improvement in nutritional iodine status. However, universal iodination and the use of iodinate salt in more than 90% of households, measures that guarantee adequate iodine provision in the diet¹⁴ and that have been shown to be of value for controlled and sustained ID eradication in some countries,²⁸ have continuously been dismissed by Spanish healthcare administrations. Regular monitoring of the actual iodine content in table salt in accordance with the regulations and control of the stable iodine content in milk are potential actions by health administrations that would undoubtedly improve the nutritional iodine status of the Spanish population.

At the start of this century, the WHO and other international organizations²⁹ defined the characteristics or circumstances of areas erroneously reported as not having ID which do in fact have IDs. These include countries where ID is supposed to have been eradicated by prophylactic programs or general dietary changes. Unfortunately, the possibility that Spain, having no decided and unequivocal political will to eradicate ID, could be included in this category or be added to the list of countries in which the reappearance of ID has recently been shown appears to be high.

Appendix 1. Work group on disorders related to iodine deficiency and thyroid dysfunction

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Torres Costa, María Teresa. Tortosa, Frederic. Vich Sastre, Francisca. Vila, Lluís, Wengrowicz, Silvia.

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