

Endocrine disrupting toxic chemical affect the development of the male reproductive system but do not appear to affect the female reproductive system.

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Introduction

To assess whether geographical variations in oestrogenic disruptor contamination affect both sexes equally: on spermatogenesis and oogenesis.

There is a clear relationship between oligozoospermia and genital malformations dependent on the accumulation of endocrine disruptors in the mother, but not on ovarian reserve.

Study design, size, duration

This is a cross-sectional study **with 10,443 healthy women aged between 20 and 45 years from eleven different communities in Spain**. We determined AMH values for each age and in groups of 5 years. Linear regression analyses were used to calculate ovarian age.

All AMH values were assessed using an ELISA assay (AMH Gen II ELISA assay; Beckman Coulter, Brea, CA, USA). All samples were processed in the same central laboratory.

Antecedents

Our Centre has conducted several population-based studies on semen quality, and have analysed the semen assessment and the medical history of 1,239 volunteers aged 18 to 30 years.

The results showed a prevalence of oligozoospermia that was highest in Valencia (22.7%), Barcelona (22.7%) and the Basque Country (18.7%). These are the regions of Spain with the highest degree of industrialisation in the last 50 years. It was lowest in Galicia (8.5%) and Andalusia (13.7%), the regions with the least industry.

Results

This is a study with 10.443 women. The mean age of the women was 36.6 years \pm 4.3 years. Reference values for AMH, were from 2,52 \pm 2,75 ng/ml. Comparing the median values of each group, differences in AMH values were obtained depending on the region of Spain analysed ($p < 0.001$). AMH values in Catalonia are statistically higher than those in Andalusia ($p < 0.001$) and the Balearic Islands ($p = 0.011$). Likewise, AMH values in Castilla León are statistically higher than those obtained in Andalusia ($p = 0.049$).

Statistically significant differences were found between the results from different geographical areas but no pattern was found to justify them. It was hypothesised that in the more industrialised areas AMH levels should be lower and that this would correspond to the higher prevalence of oligozoospermia in male volunteers, but this was not the case.



Conclusions

These results suggest that oestrogenic disruptors stored in maternal fat interfere with the action of testosterone in the foetal testis inducing testicular dysgenesis syndrome. But it does not affect embryonic/fetal ovarian development, we propose that this is because higher oestrogen levels do not alter the process.