



Introduction :

Afssaps has put into place a market control for estradiol assays following the observation of a large dispersion of results obtained for national quality controls. This market control consisted of a technical evaluation, in particular in low concentrations (less than 100pg/ml) and an evaluation of the instructions for use (IFU). In collaboration with a group of experts coordinated by Pr. Ingrand a protocol was written. After the submission of the protocol to manufacturers, evaluations were performed. The working group insisted upon the absolute necessity for use of accurate and precise assays for estradiol concentrations less than 10pg/ml for precocious puberty of girls. The objective was therefore to study if need be, the capacity of devices to be used for this indication.

Methodology :

A panel of 16 human serum samples was constituted : serum pools (4 girls pools, 1 pool of women treated by gonadoliberein analogs (down regulation) before in vitro fertilization and embryo transfer, 1 menopausal woman pool, 6 pools of women aged from 15 to 55 years, 1 men pool), individual serums (1 menopausal woman serum, 1 man serum), steroid-free serum. The samples were measured with the reference technique : GC-MS. The concentrations measured with GC-MS were between 0 and 80 pg/ml. The panel was measured twice in two different sites for 21 devices on the market. The analysis of the results consisted in comparing the obtained and the expected results.

Results :

Out of the 21 devices, 4 (including 3 radioimmunoassays) obtained results conformed to performances (notably measurement range) that were written in the IFU. Concerning the concentrations less than 10pg/ml, 3 devices out of 11 (with indicated the capability to measure such concentrations) obtained satisfactory results. Concerning the concentrations higher than 10 pg/ml, 6 devices out of 21 obtained satisfactory results conforming to there measurement range. The IFU evaluation highlighted remarks and non- conformities regarding 98/79/CE directive.

Manufacturers responses – conclusions :

For all this points, discussions took place with the manufacturers. Following this exchange periode, it appears that estradiol assays market devices evaluated by our study now present IFU that conform to the essential requirements of the 98/79/CE directive and that reflect the technical performances that were verify for accuracy in low concentrations. Only two manufacturers continue to be accompanied by Afssaps to improve there devices.

To harmonize estradiol results, Afssaps and the expert group propose recommandations about accuracy (trueness), measurement range, known relevant interferences, clinical indications.