

Role of placenta in the concentration of gadolinium

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Abstract:

Gadolinium (Gd) is a lanthanide that exists only in trace in nature. It has several chemical properties and an important paramagnetic effect that allows it to be used in many fields like medicine especially in The Magnetic Resonance Imaging (IRM). Gd may be a toxic element when it is administered intraperitoneally because it enters in competition with calcium and it has polarizing effect, that's why in this study we use the same route of administration to pregnant rates. The purpose of this work is to study the impact of gadolinium in the ovary tissues of a pregnant rat. The experiment was performed on adult female rats of Wistar strain weighing approximately 250g received a soluble solution of gadolinium or physiological serum in the same experimental conditions. At the end of treatment the animals were sacrificed by rapid decapitation and placenta was removed. The ultrastructural study through Transmission Electron Microscopy had shown the presence of load lysosomes with dense electrons in placenta cells of rates treated. Our results were agree with previous work showing that the gadolinium precipitated an insoluble form in lysosomes of different varieties of cells such as kidney, liver and mammary gland always associated with phosphorus.

In conclusion we can say that in addition to the presence of deposits of gadolinium in the lysosomes of placenta tissues, impaired endoplasmic reticulum and mitochondria were altered.

References

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