PITUITARY GLAND HYPOPITUITARISM CAN BE AVOIDED

Hypopituitarism can be prevented if the mean radiation dose to the pituitary gland is kept below 15 Gy when patients with pituitary adenomas are treated with the Leksell Gamma Knife® (Elekta AB, Stockholm, Sweden), according to a team from Prague, Czech Republic.

Radiation therapy is often used to treat patients with pituitary adenomas. However, hypopituitarism is a common adverse effect of this approach. “The radiation dose to the pituitary tissue surrounding the adenoma and to the distal infundibulum are the most important factors in the development of hypopituitarism,” explains lead author Josef Marek from the Third Department of Medicine, Charles University.

To verify these findings, the research team conducted a 7-year prospective study that included 45 patients with pituitary adenomas who received a mean radiation dose <15 Gy and 40 patients who received a mean radiation dose >15 Gy. The researchers regularly measured the secretion of hormones from endocrine glands regulated by the pituitary gland to assess the distant effects of these doses.

The authors found that hypopituitarism developed in only one of the patients treated with <15 Gy, compared with 29 of those individuals who received >15 Gy. The amount of radiation delivered to the distal infundibulum was an independent risk factor for the development of hypopituitarism.

The researchers suggest that the mean radiation dose to the pituitary tissue surrounding the adenoma should be kept below 15 Gy and below 17 Gy to the distal infundibulum. Maintaining these levels should avoid the occurrence of hypopituitarism in patients with pituitary tumors. Hypopituitarism can occur 10–15 years after a patient receives radiation therapy; to confirm their findings the authors plan to follow up their patients for at least 15 years.

Claire Greenhill

Original article Marek, J. *et al.* Is it possible to avoid hypopituitarism after irradiation of pituitary adenomas by the Leksell gamma-knife? *Eur. J. Endocrinol.* doi:10.1530/EJE-10-0733