Contribution ID: **11** Type: **talk**

PRRT as a tool for treatment of severe hypoglycemia in patients with primary inoperable insulinoma

Monday, 11 October 2021 11:10 (20 minutes)

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Introduction
Severe hypoglycaemia in a course of inoperable insulinoma may be life-threating and it is not always well controlled even by high doses of diazoxide, which in some cases cause a significant toxicity. Nowadays, other forms of effective therapy are not available - use of protein kinase inhibitors (everolimus, sunitynib) sometimes bring satisfactory effect but is often associated with the risk of serious side effects. Use of Peptide receptor radionuclide therapy (PRRT) in patients with good expression of somatostatnin receptor, characterized by relatively low toxicity, is potentially valuable treatment option.

Aim
Evaluation the PRRT effect on insulin levels in patients with primary inoperable insulinoma.

Materials and methods
3 patients (female with metastatic insulinoma, male with primary inoperable pancreatic tumor, female with MEN1 syndrome and hepatic metastases) were treated with PRRT (90Y/177Lu DOTA-TATE or 90YDOTA-TATE in the dose 7.4GBq /m2) due to severe hypoglycemia poorly controlled by diazoxide in course of primary inoperable insulinoma.

Results
In all patients PRRT had no complications. Patient 1 baseline fasting glucose concentration increased to 5.9mmol/L from 2.4mmol/L after PRRT. In patient 2 fasting glucose level 2.30mmol/L[3.30 - 5.60] increased after PRRT to value 7.0mmol/L[3.30 - 5.60] while baseline insulin level initially 31.15uU/mL [2.6 - 24.9] dropped to 15.44uU/mL[2.6 - 24.9]. In patients 3, baseline fasting glucose level 2.5mmol/L[3.30 - 5.60] increased after PRRT to value 7.9mmol/l[3.30 - 5.60], and insulin dropped from 57.96uU/mL[2.6 - 24.9] to 6.32 uU/mL[2.6 - 24.9]. 2 patients after PRRT had their dizaoxide dose reduced and 1 discontinued.

Conclusion
PRTT was effective in reduction of serum insulin levels and diazoxide dose in patients with severe hypoglycaemia in the course of primary inoperable insulinoma.

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Session Classification: Monday Noon Session