

Tytuł pracy: Correlation between parathormone, calcium and phosphate levels and mean tumor SUV in parathyroid adenoma

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Afiliacja: Objective:

Parathyroid adenoma is part of a spectrum of parathyroid disease with pathological overproduction of parathyroid hormone (PTH). The gold standard of parathyroid localization is single-radioisotope scintigraphy with technetium-99m (^{99m}Tc) combined with single-photon emission computed tomography (SPECT) imaging. (1). The aim of this study was to assess correlation between concentrations of serum calcium, inorganic phosphate, PTH and SPECT/CT data.

Methods:

A group of 72 patients (age range 30-85, mean: 62,39, SD: 13,15) consisting of 41 women (57%) and 31 men (43%) who underwent (^{99m}Tc -MIBI SPECT scan and were diagnosed with parathyroid adenoma were enrolled in this study. Levels of PTH (mean= 225,33pg/ml, SD=375.95), calcium (mean= 2,92 mmol/l, SD=0,26) and phosphate (mean=0,86mmol/l, SD=0,25) were obtained. Delayed SPECT/CT images (120 min after injection) with 1,25mm layer thickness were used to measure mean standardized uptake value in the adenoma using a volume of interest of 10mm in diameter. Relationship of SUV and laboratory parameters was assessed using correlation matrix using the jamovi software.

Results:

Analysis demonstrates that there is strong correlation between PTH level and SUV (Spearman's $\rho = 0,46$ $p < 0,001$). There was no statistically significant indication between calcium level and SUV (Spearman's $\rho = 0,23$, $p = 0,056$) or between phosphate and SUV (Spearman's $\rho = 0,014$ $p = 0,908$) in parathyroid adenoma.

Conclusion:

Level of PTH might be valuable factor in assessing metabolic activity of parathyroid adenoma cells in opposition to serum calcium and phosphate levels which are not sufficient indicator. Therefore, they cannot be used as a

dependable tool for improving scintigraphy accuracy and require further analysis.

Obraz uzupełniający: [Przesłany plik](#)