

# 学 位 論 文 の 要 旨

三 重 大 学

所 属	三重大学大学院医学系研究科 甲 生命医科学専攻 臨床医学系講座 放射線医学分野	氏 名	おおよ なかし 大矢 貴巳
<p>主論文の題名</p> <p>Quantitative assessment of <math>^{99m}\text{Tc}</math>-methylene diphosphonate bone SPECT/CT for assessing bone metastatic burden and its prognostic value in patients with castration-resistant prostate cancers: initial results in a single-center retrospective study</p> <p>主論文の要旨</p> <p><b>Purpose:</b> To evaluate the prognostic value of the quantitative assessment of <math>^{99m}\text{Tc}</math>-methylene diphosphonate (<math>^{99m}\text{Tc}</math>-MDP) bone SPECT/CT in castration-resistant prostate cancer (CRPC) patients with bone metastases.</p> <p><b>Methods:</b> A total of 103 patients who underwent <math>^{99m}\text{Tc}</math>-MDP bone SPECT/CT imaging from the neck to the proximal femur were included. First, in 65 patients without bone metastases, the normal range of standardized uptake value (SUV) of non-pathological bone was evaluated to determine an SUV threshold to reliably exclude most normal osseous activity. Then, in 38 CRPC patients with bone metastases, lesion uptake volume (LUV), which is the extracted volume of bone metastases exhibiting high accumulation above the SUV threshold, was calculated. The relation between LUV and prostate-related mortality was statistically evaluated.</p> <p><b>Results:</b> Based on the SUV measurements of non-pathological bones, the optimal SUV threshold, which defines abnormal bone SPECT uptake, was determined to be 8. Median LUV was 39 mL (interquartile range 4.0-104.3 mL) in the CRPC subjects with bone metastases. Kaplan-Meier survival analysis showed a significant relation between prostate cancer-specific survival and LUV (cut-off value, 19.95 mL; <math>P = 0.001</math>). Multivariate analysis revealed LUV as an independent prognostic factor for the survival (<math>P = 0.008</math>, hazard ratio 23.424). Global chi-square test showed that LUV had significant incremental prognostic value in addition to prostate-specific antigen and the interval from progression to CRPC until bone SPECT/CT (<math>P = 0.022</math>).</p>			