発表内容の報告書：

1)英語抄録

Title: Utility of scoring system including relative apical sparing pattern for screening cardiac amyloidosis in patients with left ventricular hypertrophy

[a,b]Yasuhisa Nakao MD, [a]Makoto Saito MD, PhD , [a]Rieko Higaki BS, [c]Yuki Yokomoto MD,

[c]Akiyoshi Ogimoto MD, PhD, [d]Moeko Suzuki MD, [d]Hideo Kawakami MD, PhD

[e]Go Hiasa MD, PhD, [e]Hideki Okayama MD, PhD, [b]Katsuji Inoue MD, PhD, [b]Shuntaro Ikeda

MD, PhD, [b]Osamu Yamaguchi MD, PhD

[a]Department of Cardiology, Kitaishikai Hospital, Ozu, Japan

[b]Department of Cardiology, Pulmonology, Nephrology and Hypertension, Ehime University

Graduate School of Medicine, Toon, Japan

[c]Department of Cardiology, Uwajima City Hospital, Uwajima Japan

[d]Department of Cardiology, Ehime Prefectural Imabari Hospital, Imabari, Japan

[e]Department of Cardiology, Ehime Prefectural Central Hospital, Matsuyama, Japan

Background: Cardiac amyloidosis (CA) is an infiltrative disease mimicking left ventricular hypertrophy (LVH), although its prognosis is poorer than other diseases with LVH. Moreover, because CA is treatable, appropriate screening for CA is an important area of study for clinicians to prevent and treat the disease. Several imaging predictors of CA have been reported so far;. in particular, deformation parameters such as relative apical sparing patterns of longitudinal strain (RASP) may diagnose CA with better precision than conventional parameters. Accordingly, we hypothesized that the inclusion of deformation parameters into the established diagnostic parameters would permit derivation of a risk score for CA screening in patients with

LVH. Thus, we aimed to 1) investigate the incremental benefits of deformation parameters over established diagnostic parameters for CA screening in patients with LVH; 2) determine the risk score to screen CA patients with LVH using all of these variables; and 3) externally validate the score.

Methods: We retrospectively studied 295 consecutive non-ischemic patients with LVH who underwent echocardiography as well as the detailed work-up for LVH (biopsy, technetium pyrophosphate scintigraphy (^{99m}Tc-PYP) or cardiac magnetic resonance imaging) (median age, 67 years; MWT, 12 mm). CA was diagnosed by biopsy or ^{99m}Tc-PYP. The base model consisted of age (≥65 [male], ≥70 [female]), low voltage in electrocardiography, and posterior wall thickness ≥14 mm in reference to previous studies. Continuous echocardiographic variables were binarized by the use of generally accepted external cutoff points to avoid best clinical scenario. Incremental benefits were assessed using receiver operating characteristic curve analysis and area under the curve (AUC) comparison. Multiple logistic regression analysis was performed to determine the risk score. The score was then validated in the external validation sample (N = 178, median age, 70 years; MWT, 12 mm).

Results: CA was observed in 54 patients (18%) and of the several echocardiographic parameters studied, only RASP demonstrated a significant incremental benefit for the screening of CA over the base model. After multiple logistic regression analysis in the prediction of CA with 4 variables (RASP and basal model components), each was assigned a numeric value based on its relative effect. The incidence rate of CA clearly increased as the sum of the risk score increased. The score had good discrimination ability, with an AUC of 0.86. Similarly, the discrimination ability of the score in the validation cohort was sufficient (AUC = 0.88).

Conclusion: Overall, we determined a simple risk score including RASP to screen CA. This score takes into account 4 common parameters used in daily practice, and therefore, has potential utility in risk stratification and management of patients with LVH.

2)日本語抄録

心アミロイドーシスのスクリーニングにおける Relative apical sparing pattern を含めたスコアの有用性

中尾恭久 [1) 2)]，齋藤実 [1)]，横本祐希 [3)]，大木元明義 [3)]，鈴木萌子 [4)]，川上秀生 [4)]，日浅豪 [5)]，岡山英樹 [5)]，井上勝次 [2)]，池田俊太郎 [2)]，山口修 [2)]

1)喜多医師会病院　循環器内科，2)愛媛大学医学部附属病院　循環器・呼吸器・腎高血圧内科，3)市立宇和島病院　循環器内科，4)愛媛県立今治病院　循環器内科，5)愛媛県立中央病院　循環器内科

目的：左室肥大を示す疾患には心アミロイドーシス(CA)が含まれ，心エコー指標は CA の診断に有用である．今回我々は，非侵襲的に CA を分別するスコアの作成を試み，その検証を行った．

方法：愛媛県ド 2 施設で心筋症精査のために生検，ピロリン酸シンチあるいは心臓 MRI 検査が施行された非虚血性心肥大連続 295 例を対象とした．CA は生検とピロリン酸シンチグラフィで診断した．過去の報告から年齢，低電位，後壁厚≧14 mm を CA 予測スコアの基本項目とし，2 値化した各心エコー指標を加え，付加的価値を検討した．基本項目と有意な付加的価値を認めた指標で，多重ロジスティック回帰分析でスコアを作成し，県下他 3 施設の検証群（全 178 例中 CA56 例）で，同様の傾向であるか検証を行った．

結果：CA は 54 例（18%）に認めた．心エコーパラメータのうち Relative apical sparing pattern(RASP)は，CA 診断に唯一有意な付加的価値を認めた．基本項目と RASP を含めた 4 項目に関してロジスティック回帰分析を行い，得られた結果に基づいて各 4 項目に 1 ポイントずつ割り当て，スコアを作成した．作成したスコアは良好な CA 診断能を有し(AUC=0.86)，この結果は 178 例の検証群でも同様であった(AUC=0.88)．

結語：CA をスクリーニングするために，RASP を含む生理学的な指標でリスクスコアを作成した．このスコアは日常診療で使用可能な一般的なパラメータで構成されており，心肥大患者のリスク層別化に有用と思われた．

3)発表時の質問とコメント，及びそれに対する日本語によるまとめ

本会はオンラインによる開催となったため，座長等とリアルタイムの質問やコメントは行うことはなかった.