#792 Prognostic impact of plasma level of NT-pro BNP in patients with microvascular angina
-A report from the international cohort study by COVADIS-

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COI disclosures

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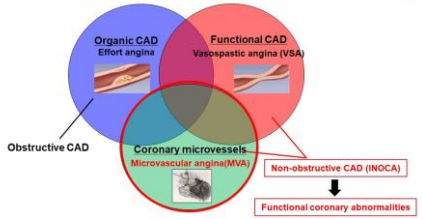
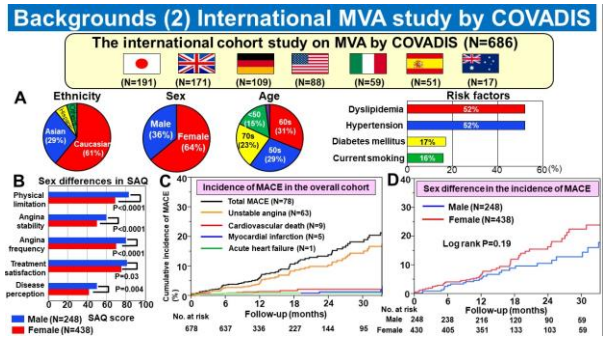
Backgrounds (1) Importance of CMD in CCS



Backgrounds (2) International MVA study by COVADIS



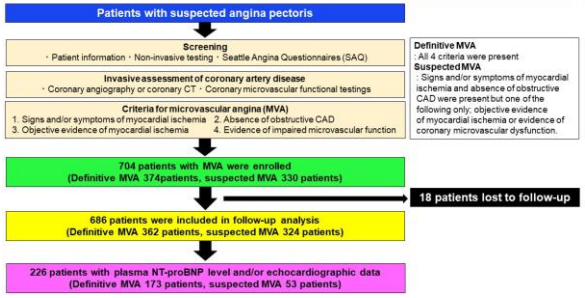
Purpose

We aimed to examine whether plasma levels of N-terminal prohormone of brain natriuretic peptide (NT-pro BNP) could predict the prognosis of MVA patients.

Methods

1. **International prospective cohort study on MVA by COVADIS**
   - July 2015～December 2019,
   - N=686 from 14 institutes in 7 countries (Shimokawa et al. *EHJ* 2021)
2. **Study population**
   - 226 consecutive pts with baseline plasma NT-proBNP levels and echocardiographic data (LVEF, E/e', etc.)
3. **Study endpoints**
   - Primary endpoints: MACE (CV death, non-fatal MI, hospitalization for HF or UAP)
4. **Statistical methods**
   - K-M methods for survival estimates, ROC analysis for discrimination

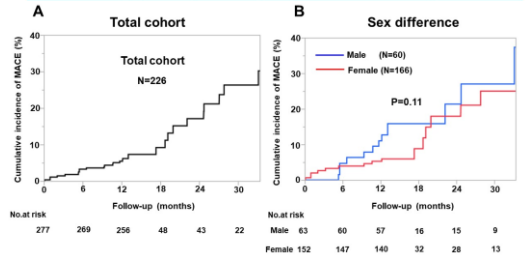
Results (1) Study flow chart



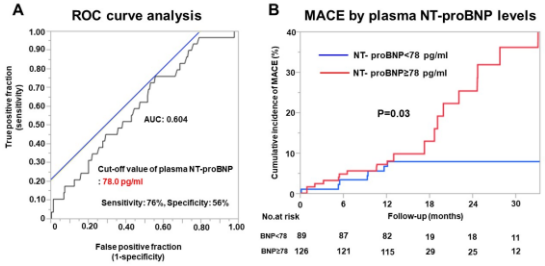
Results (2) Baseline patient characteristics

Characteristics	Total cohort (N=461)	Male (N=187)	Female (N=274)	P value
Age (mean, yrs.)	62.0±11.4	61.4±12.3	62.5±10.7	0.29
Race or ethnic group, n (%)				
Caucasian	284 (61)	86 (17)	198 (43)	
Asian	172 (37)	99 (21)	86 (16)	
Hispanic	1 (0.2)	1 (0.2)	0 (0)	
Black	1 (0.2)	0 (0)	1 (0.2)	
Others	3 (0.6)	1 (0.2)	2 (0.4)	
Body mass index (mean)	26.1±5.9	25.4±4.3	24.8±4.8	0.08
Hypertension, n (%)	236 (51)	104 (23)	132 (29)	0.12
Dyslipidemia, n (%)	262 (57)	94 (20)	168 (36)	0.02
Diabetes mellitus, n (%)	71 (15)	35 (7)	36 (8)	0.11
Current smoking, n (%)	82 (18)	38 (8)	44 (10)	0.24
Previous history of CAD, n (%)	114 (25)	46 (10)	68 (15)	0.96
Previous PCI, n (%)	36 (8)	25 (5)	11 (2)	0.003
LVEF (mean, %)	68.0±10.9	66.4±12.0	69.5±9.7	0.06
E/e'	10.3±4.6	10.0±4.1	10.5±4.9	0.56
NT-proBNP (pg/ml)	54 (20-127)	29.5 (14.5-72.2)	78 (27.1-159.5)	<0.0001
Seattle Angina Questionnaire score (median, IQR)				
Physical limitation	72 (47-92)	82 (56-97)	67 (47-86)	0.0002
Angina stability	50 (50-75)	50 (50-100)	50 (25-75)	0.99
Angina frequency	70 (50-90)	80 (50-90)	70 (50-80)	0.004
Treatment satisfaction	81 (63-88)	81 (63-88)	75 (63-88)	0.34
Disease perception	50 (25-67)	50 (33-67)	42 (25-67)	0.046
Initial treatment after diagnosis				
Statin, n (%)	290 (63)	103 (22)	187 (41)	0.004
Nitrate, n (%)	211 (46)	69 (15)	142 (31)	0.002
Calcium channel blocker, n (%)	173 (38)	91 (20)	82 (18)	<0.0001
Beta blocker, n (%)	158 (34)	55 (29)	103 (22)	0.07
Angiotensin-converting enzyme inhibitor, n (%)	100 (22)	37 (20)	63 (23)	0.41
Angiotensin II receptor blocker, n (%)	87 (19)	35 (8)	52 (11)	0.94

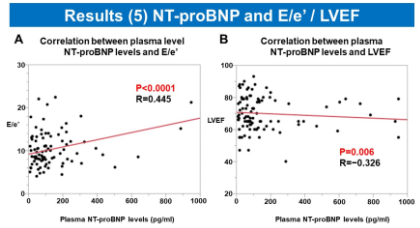
Results (3) Long-term prognosis of MVA patients



Results (4) Long-term prognosis by NT-proBNP



Results (5) NT-proBNP and E/e' / LVEF



Discussion Significance of NT-proBNP in MVA

1. **Major findings of the present study**
   Plasma NT-pro BNP levels
   (1) were higher in females than in males
   (2) correlated with E/e' and LVEF in echocardiography
   (3) significantly correlated with the occurrence of MACE
2. **Clinical settings in MVA vs. HFpEF**
   The present findings endorse the hypothesis that similar clinical conditions could co-exist between MVA and HFpEF.
3. **Prognostic impact of plasma NT-proBNP levels**
   The first observation in patients with MVA (CMD).
4. **Sex differences in MVA**
   Elevation of NT-proBNP may relate to lower QOL and future CV evets in female patients with MVA.
5. **Correlation between plasma NT-proBNP levels and cardiac functions**
   This finding suggests that a common underlying mechanism of cardiac diastolic dysfunction exists in both MVA and HFpEF.
6. **Study limitations**
   (1) No reference group
   (2) Relatively small number of MACE
   (3) UAP as a major MACE
   (4) Exclusion of obstructive CAD
   (5) No data regarding changes in or adherence to medical Tx during F/U

Conclusion

In the present study, we were able to demonstrate that in patients with MVA, plasma levels of NT-proBNP could be a novel prognostic biomarker, suggesting an involvement of common underlying mechanisms as in HFpEF.

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