



Physician connect

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Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you '**Physician connect**' which contains latest and interesting news in the field of Medicine.

This issue contains

- Redefining cardiac biomarkers in predicting mortality of inpatients with COVID-19
- Patients with chronic migraine without history of medication overuse are characterized by a peculiar white matter fiber bundle profile
- Assessment of Shared Decision-making for Stroke Prevention in Patients with Atrial Fibrillation: A Randomized Clinical Trial

Should you require any specific article or medical information, please feel free to contact us at

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Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Limited

Redefining cardiac biomarkers in predicting mortality of inpatients with COVID-19

The prognostic power of circulating cardiac biomarkers, their utility and pattern of release in coronavirus disease 2019 (COVID-19) patients have not been clearly defined. In this multi-centered retrospective study, we enrolled 3,219 patients with diagnosed COVID-19 admitted to 9 hospitals from December 31, 2019 to March 4, 2020, to estimate the associations and prognostic power of circulating cardiac injury markers with the poor outcomes of COVID-19.

In the mixed-effect Cox model, after adjusting for age, gender and comorbidities, the adjusted hazard ratios of 28-day mortality for high-sensitivity cardiac troponin I (hs-cTnI) was 7.12 (95%CI, 4.60-11.03; $P < 0.001$), NT-proB-type natriuretic peptide (NT-proBNP) was 5.11 (95%CI, 3.50-7.47; $P < 0.001$), CK-MB was 4.86 (95%CI, 3.33-7.09; $P < 0.001$), myoglobin was 4.50 (95%CI, 3.18-6.36; $P < 0.001$), and CK was 3.56 (95%CI, 2.53-5.02; $P < 0.001$).

Trajectory analysis showed cardiac injury biomarkers are elevated early in course of disease, being parallel to CRP and neutrophil rise, but precedes rise in IL-6, and predicts mortality, ventilator use and ICU admission.

The cutoffs of those cardiac biomarkers for effective prognosis of 28-day mortality of COVID-19 were found to be much lower than for regular heart disease at about 49% of the currently recommended thresholds. Patients with elevated cardiac injury markers above the newly established cutoffs were associated with significantly increased risk of COVID-19 death.

Cardiac biomarker elevations are significantly associated with 28-day death in patients with COVID-19. The prognostic cutoffs for these values might be much lower than the current reference standards. These findings can assist better management of COVID-19 patients to improve outcomes. Importantly, the newly established cutoff levels of COVID-19 associated cardiac biomarkers may serve as useful criteria for the future prospective studies and clinical trials.

Heart injury is one of the major complications in patients with coronavirus disease 2019 (COVID-19). However, the prognostic power of cardiac biomarkers,

their utility and pattern of release in COVID-19 patients have not been clearly defined. However, the prognostic power of cardiac biomarkers, their utility and pattern of release in COVID-19 patients have not been clearly defined.

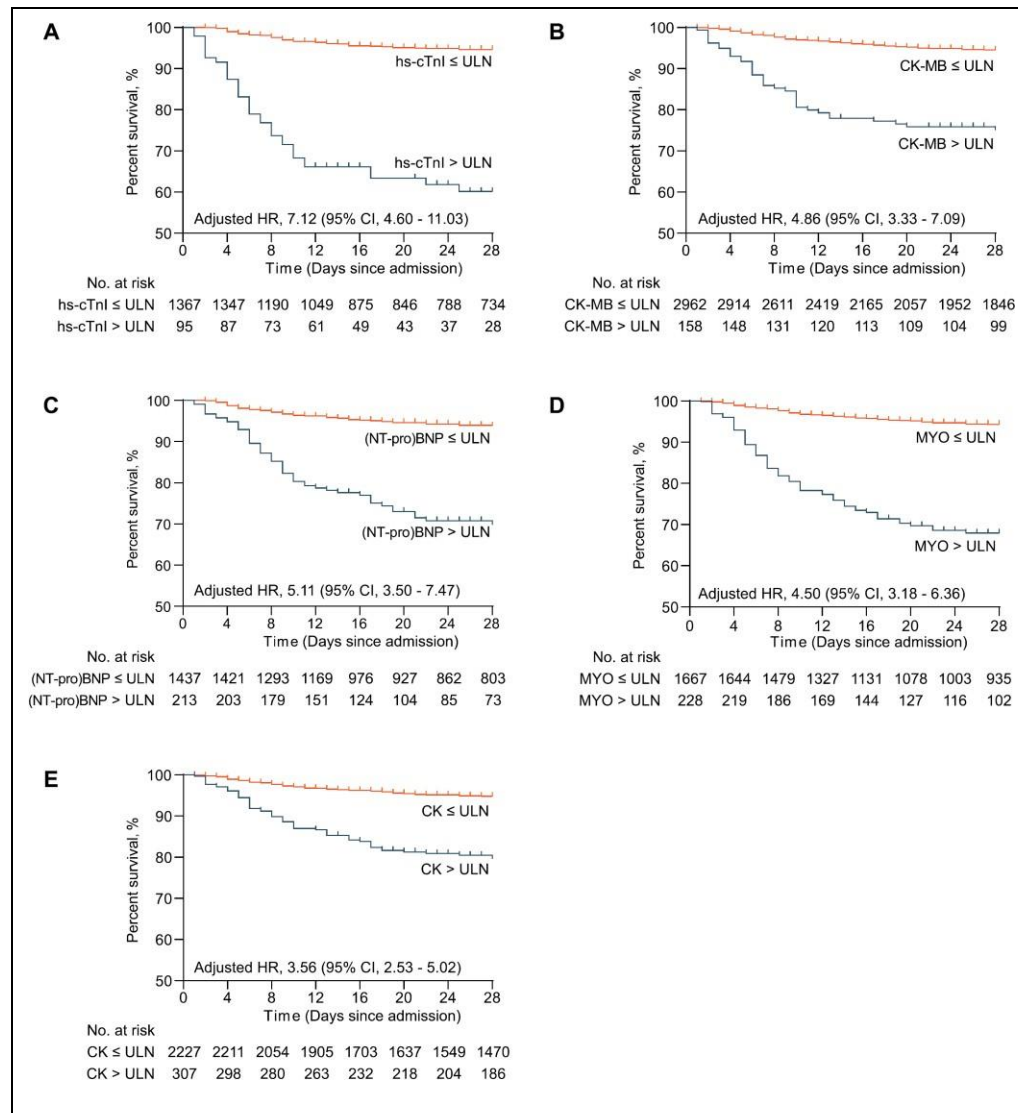


Figure Kaplan-Meier Curves showing cumulative survival of COVID-19 patients with increased or normal levels of hs-cTnI (A), CK-MB (B), (NT-pro)BNP (C), MYO (D), and CK (E) during a 28-day follow-up. The increase of myocardial marker represents level above the ULN.

This multi-centered retrospective cohort study involving 3,219 patients demonstrated that hazard ratios for admission cardiac biomarkers such as hs-cTnI, CK-MB or NT-ProBNP for 28-day mortality is very high at between 4-7 times. The established cutoff values of each cardiac biomarker to predict the risk of COVID-19 mortality is actually much lower than standard reference laboratory cutoffs by being about 50% lower. Trajectory analysis showed cardiac injury

biomarkers are elevated early in course of disease, being parallel to CRP and neutrophil rise, but precedes rise in IL-6, and predicts mortality, ventilator use and ICU admission.

Source: Qin JJ et al. Hypertension 2020 July. [online ahead of print] DOI: 10.1161/HYPERTENSIONAHA.120.15528

Patients with chronic migraine without history of medication overuse are characterized by a peculiar white matter fiber bundle profile

Migraine is a chronic disease in nature, but with recurrent acute episodic manifestations. Only a small percentage of people with episodic migraine later develop chronic migraine (CM). Of the various techniques used to analyze magnetic resonance imaging (MRI) data, diffusion tensor imaging (DTI) can be used to effectively examine the microstructural integrity of WM. In this study, Coppola et al. performed

tract based spatial statistics (TBSS) using DTI obtained on a 3 T scanner from patients with episodic and CM who did

Chronic migraine can be associated with the widespread disruption of normal white matter integrity in the brain.

not have any previous history of medication overuse and were not taking preventive medications; the findings were compared to those obtained from a group of HCs.

This study prospectively recruited 37 patients with migraine: 19 patients with episodic migraine without aura (MO) and 18 patients with CM. All patients underwent a series of neuroimaging tests. None of the patients enrolled had been prophylactically treated for migraine for at least 3 months, and the patients with CM had no history of excessive use of symptomatic. All patients were tested during the interictal period, which was defined as the period at which it had been at least 3 days since the last attack and 3 days before the subsequent attack for the MO group; only two patients with CM had mild headache at the time of scanning.

TBSS revealed no significant differences in the FA, MD, RD, and AD maps between the MO and HC groups. In comparison to the HC group, the CM group exhibited

widespread increased RD (bilateral superior [SCR] and posterior corona radiata [PCR], bilateral genu of the corpus callosum [CC], bilateral posterior limb of internal capsule [IC], bilateral superior longitudinal fasciculus [LF]) and MD values (tracts of the right SCR and PCR, right superior LF, and right splenium of the CC).

Table 1 Clinical and demographic characteristics of healthy controls (HC), migraine without aura patients scanned between attacks (MO) and chronic migraineurs (CM). Data are expressed as the mean $\pm$ SD

Characteristics	HC (n = 18)	MO (n = 19)	CM (n = 18)
Female (n)	11	13	11
Age (years)	28.4 $\pm$ 4.1	31.9 $\pm$ 2.1	31.5 $\pm$ 10.1
Duration of migraine history (years)		14.2 $\pm$ 6.7	14.8 $\pm$ 12.8
Attack frequency/month for MO and Headache days/month for CM (n)		3.2 $\pm$ 2.1	23.0 $\pm$ 7.3
Migraine days/month for CM (n)			14.9 $\pm$ 6.3
Days from the last migraine attack for MO (n)			21.0 $\pm$ 18.3
Severity of headache attacks (0–10 VAS score)		7.5 $\pm$ 0.8	7.4 $\pm$ 0.6
Number of acute medication intake/month (n)		2.8 $\pm$ 3.1	2.1 $\pm$ 0.4

When compared the MO and CM groups; the CM group exhibited decreased FA values in the tracts of the bilateral SCR and PCR, bilateral body of the CC, right superior LF, and right forceps minor (part of the genu of the CC), and increased MD values in the tracts of the bilateral SCR and right PCR, right body of the CC, right superior LF, right splenium of the CC, and right posterior limb of IC (Fig.).

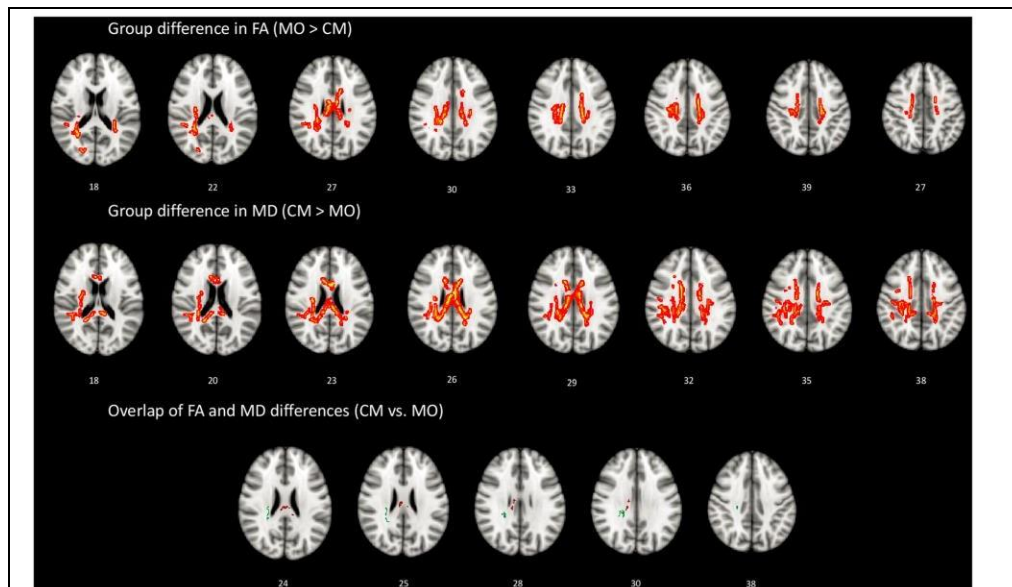


Fig. White matter (WM) regions showing decreased fractional anisotropy (FA) and increased mean diffusivity (MD) in patients with chronic migraine (CM) compared to patients with episodic migraine without aura (MO). WM regions showing overlapping FA and MD value differences in the right corpus callosum and right posterior corona radiata

Source: Coppola G et al. J Headache Pain. 2020; 21(1): 92.

Assessment of Shared Decision-making for Stroke Prevention in Patients with Atrial Fibrillation: A Randomized Clinical Trial

Shared decision-making (SDM) about anticoagulant treatment in patients with atrial fibrillation (AF) is widely recommended but its effectiveness is unclear. This study was done to assess the extent to which the use of an SDM tool affects the quality of SDM and anticoagulant treatment decisions in at-risk patients with AF. This encounter-randomized trial recruited patients with nonvalvular AF who were considering starting or

reviewing anticoagulant treatment and their clinicians at academic, community, and safety-net medical centers between January 30, 2017

The use of an SDM encounter tool improved several measures of SDM quality and clinician satisfaction.

and June 27, 2019. Encounters were randomized to either the standard care arm or care that included the use of an SDM tool (intervention arm). Data were analyzed from August 1 to November 30, 2019. The interventions were Standard care or care using the Anticoagulation Choice Shared Decision Making tool (which presents individualized risk estimates and compares anticoagulant treatment options across issues of importance to patients) during the clinical encounter.

Quality of SDM (which included quality of communication, patient knowledge about AF and anticoagulant treatment, accuracy of patient estimates of their own stroke risk [within 30% of their estimate], decisional conflict, and satisfaction), decisions made during the encounter, duration of the encounter, and clinician involvement of patients in the SDM process.

The clinical trial enrolled 922 patients (559 men [60.6%]; mean [SD] age, 71 [11] years) and 244 clinicians. A total of 463 patients were randomized to the intervention arm and 459 patients to the standard care arm. Participants in both arms reported high communication quality, high knowledge, and low decisional conflict, demonstrated low accuracy in their risk perception, and would similarly recommend the approach used in their encounter. Clinicians were significantly more satisfied after intervention encounters (400 of 453 encounters [88.3%] vs 277 of 448 encounters [61.8%]; adjusted relative risk, 1.49; 95% CI, 1.42-1.53). A total of 747 of 873 patients (85.6%) chose to start or continue receiving an anticoagulant medication. Patient involvement in decision-making (as assessed

through video recordings of the encounters using the Observing Patient Involvement in Decision Making 12-item scale) scores were significantly higher in the intervention arm (mean [SD] score, 33.0 [10.8] points vs 29.1 [13.1] points, respectively; adjusted mean difference, 4.2 points; 95% CI, 2.8-5.6 points). No significant between-arm difference was found in encounter duration (mean [SD] duration, 32 [16] minutes in the intervention arm vs 31 [17] minutes in the standard care arm; adjusted mean between-arm difference, 1.1; 95% CI, -0.3 to 2.5 minutes).

Outcome	No. (%)		Effect (95% CI)	Intraclass correlation	
	Intervention arm (n = 419)	Standard care arm (n = 411)		Clinic	Clinician/clinic
OPTION12 patient engagement score, mean (SD)	33.0 (10.8)	29.1 (13.1)	4.2 (2.8 to 5.6)	0.30	0.33
Fidelity score ^a					
Mean (SD)	5.6 (1.4)	0.2 (0.9)	NA	NA	NA
Median (IQR)	6.0 (6.0-6.0)	0	NA	NA	NA
Fidelity score components					
Tool was used ^b	401 (95.7)	9 (2.2)	NA	NA	NA
Tool sections used					
Current risk ^c	399 (95.2)	9 (2.2)	NA	NA	NA
Treated risk ^d	389 (92.8)	8 (1.9)	NA	NA	NA
Issues ^e	361 (86.2)	7 (1.7)	NA	NA	NA
Bleeding	367 (87.6)	320 (77.9)	NA	NA	NA
Anticoagulant treatment routine	373 (89.0)	306 (74.5)	NA	NA	NA
Reversing anticoagulant treatment	333 (79.5)	195 (47.4)	NA	NA	NA
Cost	378 (90.2)	261 (63.5)	NA	NA	NA
Diet and/or drug interaction	345 (82.3)	233 (56.7)	NA	NA	NA
How tool was used					
Presentation ^f	28 (6.7)	0	NA	NA	NA
Interaction ^g	359/401 (89.5)	9/9 (100) ^h	NA	NA	NA
Discussion was led by patient priority ⁱ	53 (12.7)	29 (7.1)	2.0 (1.3 to 3.2) ^j	0	0.44
Duration of encounter, mean (SD), min	32 (16)	31 (17)	1.1 (-0.3 to 2.5) ^k	0.08	0.63

Table: Observed Encounter Outcomes

The use of an SDM encounter tool improved several measures of SDM quality and clinician satisfaction, with no significant effect on treatment decisions or encounter duration. These results help to calibrate expectations about the value of implementing SDM tools in the care of patients with AF.

Source: Kunneman et al. JAMA Intern Med. Published online July 20, 2020. doi:10.1001/jamainternmed.2020.2908

