



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.

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- A Systematic Echocardiographic Study on the Spectrum of Cardiac Manifestations in COVID-19
- Headaches Associated with PPE – A Cross-sectional Study Amongst Frontline Healthcare Workers During COVID-19 (HAPPE Study)
- Oral P2Y12 Inhibitors in ACS : A Network Meta-Analysis of 52,816 Patients from 12 Randomized Trials

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

A Systematic Echocardiographic Study on the Spectrum of Cardiac Manifestations in COVID-19

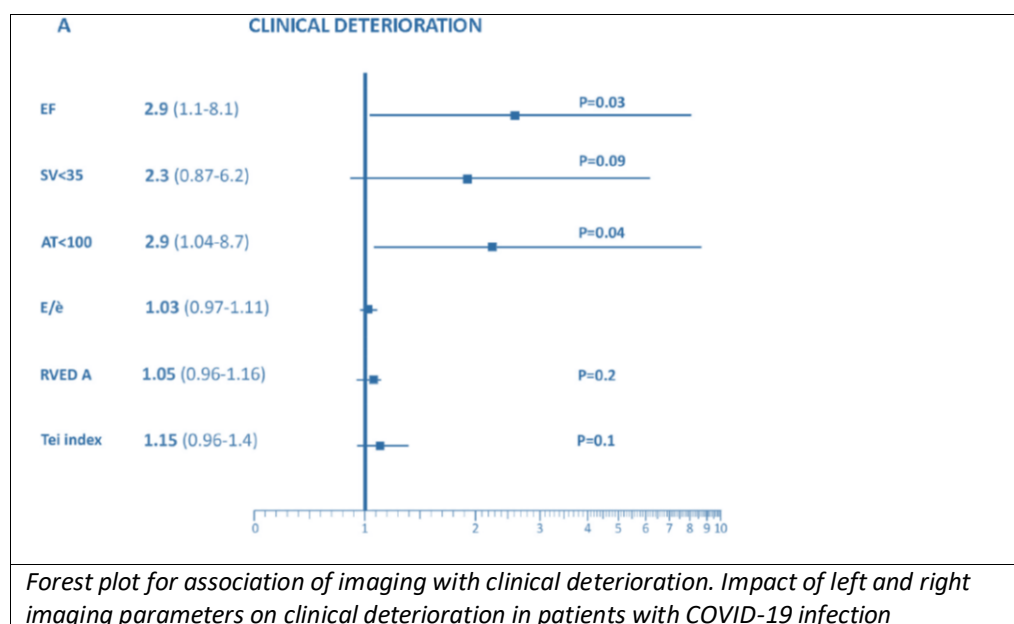
The spectrum of pulmonary COVID-19 infection ranges from mild, self-limiting respiratory tract illness to severe progressive pneumonia, multi-organ failure, and death. Information regarding the cardiac manifestations of COVID-19 is scarce. This was a systematic and comprehensive echocardiographic evaluation of consecutive patients hospitalized with COVID-19 infection.

Elevated troponin and poorer clinical grade are associated with worse RV function.

A total of 100 consecutive patients diagnosed with COVID-19 infection underwent complete echocardiographic evaluation within 24 hours of admission and were compared to reference values. Echocardiographic studies included left ventricular (LV) systolic and diastolic function, valve hemodynamics and right ventricular (RV) assessment, as well as lung ultrasound. A second exam was performed in case of clinical deterioration. Thirty two patients (32%) had a normal echocardiogram at baseline. The most common cardiac pathology was RV dilatation and dysfunction (observed in 39% of patients), followed by LV diastolic dysfunction (16%) and LV systolic dysfunction (10%). Patients with elevated troponin (20%) or worse clinical condition did not demonstrate any significant difference in LV systolic function compared to patients with normal troponin or better clinical condition, but had worse RV function. Clinical deterioration occurred in 20% of patients. In these patients, the most common echocardiographic abnormality at follow-up was RV function deterioration (12 patients), followed by LV systolic and diastolic deterioration (in 5 patients). Femoral vein thrombosis (DVT) was diagnosed in 5 of 12 patients with RV failure.

Transthoracic echocardiography should be performed only when clinically indicated, to minimize the risk of spreading the infection by COVID-19. In

patients with clinical deterioration, echocardiography helps establishing the mechanism of cardiac injury with significant impact on patients' management. This study found that 32% of patients with COVID-19 have normal echocardiography. The most frequent abnormality is right ventricular (RV) dilation or dysfunction. Among patients developing clinical deterioration during follow-up (20% of hospitalized patients), repeated echocardiogram shows further deterioration of the RV parameters, probably related to increased pulmonary resistance. Five of these patients had deep vein thrombosis.



In COVID-19 infection, LV systolic function is preserved in the majority of patients, but LV diastolic and RV function are impaired. Elevated troponin and poorer clinical grade are associated with worse RV function. In patients presenting with clinical deterioration at follow-up, acute RV dysfunction, with or without DVT, is more common, but acute LV systolic dysfunction was noted in $\approx 20\%$.

Source: Szekely Y et al. Circulation. 2020 May 29 [Online ahead of print]. 10.1161/CIRCULATIONAHA.120.047971

Headaches Associated with PPE – A Cross-sectional Study Amongst Frontline Healthcare Workers During COVID-19 (HAPPE Study)

Headaches arising from the sustained compression of pericranial soft tissues by donning of objects with tight bands or straps around the head (eg, hat, helmet, goggles worn during swimming or diving, or frontal lux devices) have been previously reported in the literature.

The study evaluated the prevalence and characteristics of de novo headaches associates with PPE exposure (specifically N95 face mask and/or protective eyewear) among healthcare workers in our institution. In

Better strategies are needed for designing various personal protection equipment and reducing their exposure time by healthcare workers.

addition, evaluated the impact of PPE usage on pre-existing headache disorders, identified risk factors for the development of PPE-associated headaches and evaluated the overall impact of headaches during COVID-19 on the work performance of healthcare workers.

This is a cross-sectional study among healthcare workers at the tertiary institution who were working in high-risk hospital areas during COVID-19. All respondents completed a self-administered questionnaire.

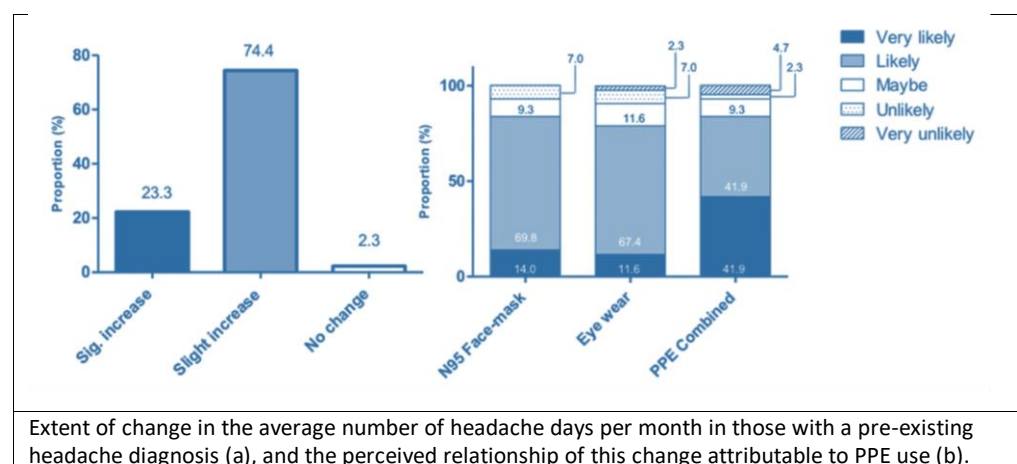
A total of 158 healthcare workers participated in the study. Majority [126/158 (77.8%)] were aged 21-35 years. Participants included nurses [102/158 (64.6%)], doctors [51/158 (32.3%)], and paramedical staff [5/158 (3.2%)]. Pre-existing primary headache diagnosis was present in about a third [46/158 (29.1%)] of respondents. Those based at the emergency department had higher average daily duration of combined PPE exposure compared to those working in isolation wards [7.0 (SD 2.2) vs 5.2 (SD 2.4) hours, $P < .0001$] or medical ICU [7.0 (SD 2.2) vs 2.2 (SD 0.41)

hours, $P < .0001$]. Out of 158 respondents, 128 (81.0%) respondents developed de novo PPE-associated headaches. A pre-existing primary headache diagnosis (OR = 4.20, 95% CI 1.48-15.40; $P = .030$) and combined PPE usage for >4 hours per day (OR 3.91, 95% CI 1.35-11.31; $P = .012$) were independently associated with de novo PPE-associated headaches. Since COVID-19 outbreak, 42/46 (91.3%) of respondents with pre-existing headache diagnosis either “agreed” or “strongly agreed” that the increased PPE usage had affected the control of their background headaches, which affected their level of work performance.

Demographic Variables	Odds Ratio (95% Confidence Interval)	P-Value
Female gender	0.88 (0.33-2.34)	.790
Age (years)		
21-40	0.49 (0.11-2.12)	.337
>41		
Ethnicity		
Chinese	0.69 (0.27-1.79)	.454
Others: Indian, Malay, Filipino, Caucasian, etc		
Originating department of healthcare workers		
Emergency department	2.60 (0.84-8.03)	.087
Others: medicine, nursing, ICU		
Pre-existing primary headache diagnosis	4.20 (1.48-15.40)	.030*
Duration of combined N95 face mask and eyewear use per day		
>4 hours	3.91 (1.35-11.31)	.012*
1-4 hours		

*Statistically significant results.
†Due to multi-collinearity of variables (“duration of combined N95 face-mask & eyewear use per day” and “duration of N95 face-mask use per day”), they were analyzed in 2 separate models, including only one of these variables in each model.

Multivariable Logistic Regression Analysis of Independent Factors and PPE Usage Patterns Associated With the Development of De Novo PPE-Associated Headaches



The magnitude of de novo headaches is clinically significant and might worsen if the current outbreak spreads widely and stays for a longer time, affecting the work performance of healthcare workers. Perhaps, better

strategies are needed for designing various personal protection equipment and reducing their exposure time by healthcare workers. Most healthcare workers develop de novo PPE-associated headaches or exacerbation of their pre-existing headache disorders.

Source: Ong JJY et al. Headache. 2020 May;60(5):864-877. doi: 10.1111/head.13811. Epub 2020 Apr 12.

Oral P2Y12 Inhibitors in ACS : A Network Meta-Analysis of 52,816 Patients from 12 Randomized Trials

Oral P2Y12 receptor inhibitors in combination with aspirin constitute the foundation of antiplatelet strategy after acute coronary syndrome (ACS). Current international guidelines recommend the P2Y12 inhibitors, ticagrelor or Prasugrel, over clopidogrel for patients with ACS.

Ticagrelor was associated with greater cardiovascular mortality reduction.

A network meta-analysis and direct pairwise comparison analysis of efficacy and safety outcomes from twelve RCTs including a total of 52,816 patients with ACS was performed. This study aimed to evaluate current evidence comparing the efficacy and safety profile of prasugrel, ticagrelor and clopidogrel in ACS by a meta-analysis of RCTs.

Compared with clopidogrel, ticagrelor significantly reduced cardiovascular mortality (hazard ratio(HR), 0.82 [95% confidence interval(CI), 0.72-0.92]) and all-cause mortality (HR, 0.83 [95% CI, 0.75-0.92]), whereas there was no statistically significant mortality reduction with prasugrel (HR, 0.90 [95% CI, 0.80-1.01] and HR, 0.92 [95% CI, 0.84-1.02], respectively). Compared with each other there were no significant differences in mortality (HR prasugrel vs ticagrelor, 1.10 [95% CI, 0.94-1.29] and 1.12 [95% CI, 0.98-1.28]). Compared with clopidogrel, prasugrel reduced myocardial infarction (HR, 0.81 [95% CI, 0.67-0.98]), whereas ticagrelor showed no risk reduction (HR, 0.97 [95% CI, 0.78-1.22]). Differences between prasugrel and ticagrelor were not statistically

significant. Stent thrombosis risk was significantly reduced by both ticagrelor and prasugrel vs clopidogrel (28-50% range of reduction).

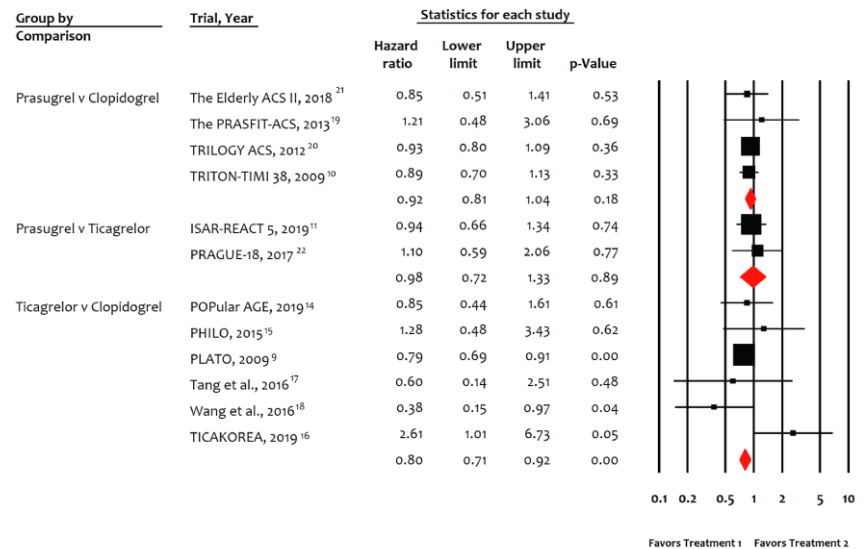
Compared with clopidogrel, both prasugrel (HR, 1.26 [95% CI, 1.01-1.56]) and ticagrelor (HR, 1.27 [95% CI, 1.04-1.55]) significantly

increased major bleeding. There

were no significant differences between prasugrel and ticagrelor for all outcomes explored.

In patients with ACS, both ticagrelor carried superior efficacy to clopidogrel and should be the preferred antiplatelet agents as per guideline recommendations. The findings support the mortality benefit and reduction in ischemic outcomes with ticagrelor in high-risk patients. This large-scale analysis on oral P2Y12 inhibitors in acute coronary syndrome (ACS) provides consistent findings of comparable anti-ischemic efficacy with ticagrelor and prasugrel, as compared to clopidogrel. As compared to clopidogrel, only ticagrelor was associated with greater cardiovascular mortality reduction, while both ticagrelor and prasugrel were associated with a higher bleeding risk. Sensitivity analyses without open-label studies confirmed consistent mortality reduction with ticagrelor therapy without a significant bleeding increase, at variance with prasugrel therapy.

Source: Navarese EP et al. Circulation 2020 May 29. Epub ahead of print. 10.1161/CIRCULATIONAHA.120.046786



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