Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Methods: This is a post hoc, comparative, and cross-sectional analysis of the IBIS-4 study. Forty frames were randomly selected and analyzed by interventional cardiologists of varying expertise two separate times, one week apart. Their measurements of lumen, vessel, plaque areas, and plaque burden were performed using offline, dedicated software.

Results: Among humans, the intra-observer variability was not statistically significant. For the total 80 frames, inter-observer variability between human readers, the ML algorithm, and Core Laboratory for lumen area, vessel area, plaque area, and plaque burden were also not statistically different. For lumen area, however, the relative differences between the human readers and the Core Lab ranged from 0.26% to 12.61%, and for vessel area, they ranged from 1.25% to 9.54%. Efficiency between the ML algorithm and the readers differed notably. Humans spent 47 minutes on average to complete the analyses, while the ML algorithm took on average less than 1 minute.

Conclusion: The overall lumen, vessel, and plaque means analyzed by humans and the proposed ML algorithm are similar to those of the Core Lab. Machines, however, are more time-efficient. It is warranted to consider the use of the ML algorithm in clinical practice.

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IMAGING – MRI

400.05 Serological and Molecular Detection of Cardiotropic Viruses in Adults With Myocarditis in Egypt
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Background: Recent studies have shown that several viruses are frequently encountered in myocarditis, with suggestions that multiple viral species play a role in the transition from myocarditis to dilated cardiomyopathy. The purpose of this study was to screen patients with suspected viral myocarditis for anti-viral antibodies by ELISA and viral genomes by using polymerase chain reaction (PCR) to detect the different cardiotropic viruses that may be involved in the pathogenesis of the disease.

Methods and Results: This is a prospective observational study. We recruited 51 patients with unexplained HF presenting at a university hospital from 1st October 2020 till 31st March 2021 (Fig.1). Patients were included if they present with unexplained acute HF associated with normal coronary angiography (CA). All patients were subjected to full history and examination, ECG, echocardiography, cardiac magnetic resonance (CMR) and CA. Sera were obtained from all suspected patients for detection of antibodies against the viruses by using ELISA and polymerase chain reaction (PCR).

Conclusions: Viral IgM and genomes were frequently detected in the serum of patients with suspected myocarditis. Our data suggest that myocardial persistence of various viruses, often presenting as multiple infections, may play a role in the pathogenesis of myocarditis far more frequently than suspected so far. (Clinical Trial registration no.=NCT04312490, STDF grant no. 26393).

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400.06 Prevalence, Clinical Course and Etiology of Viral Myocarditis in the COVID-19 Era
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Background: Myocarditis is one of the most suspected etiologies in patients with unexplained heart failure (HF). We studied the in-hospital prevalence of viral myocarditis and recognize the etiologic cardiotropic viruses in patients admitted with unexplained HF during the COVID era.

Method: This is a prospective observational study. We recruited patients with unexplained HF presenting at a university hospital from 1st October 2020 till 31st March 2021 (Fig.1). Patients were included if they present with unexplained acute HF associated with normal coronary angiography (CA). All patients were subjected to full history and examination, ECG, echocardiography, cardiac magnetic resonance (CMR) and CA. Sera were obtained from all suspected patients for detection of antibodies against the viruses by using ELISA and polymerase chain reaction (PCR).
Results: 51 patients fulfilled the inclusion criteria. 72.5% were males with mean age 39±16 years. We classified patients into 2 categories based on CMR results: Group A (CMR positive myocarditis) 12 patient (23.5%) and group B (CMR negative myocarditis) 39 (68.6%) patients. 51% of the patients presented with dyspnea, 27.5% with chest pain, 33.3% had LVEF<50%,19.6% with cardiogenic shock. 65.9% of patients (n=31/47) were associated with antibodies against the common cardiotropic viruses. Parvovirus B19 22 (46.8%) and Coxackie 16 (34%) were observed. 3 patients died at 6 months clinical follow up; 91.5% from patients had recovered left ventricular ejection fraction.

Conclusion: The in-hospital prevalence of myocarditis was 5 times higher in the COVID era. CMR is a good positive test for the diagnose acute myocarditis. Parvovirus B19 and Coxackie viruses represent most common pathogens in our locality. (Clinical trial registration no=NCT04312490, STDF grant no=26393)

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400.07 Prognostic Value of Microvascular Obstruction Following Primary Revascularization in Egyptian STEMI Cohort: CMR Study

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Background: Microvascular obstruction (MVO) is frequently encountered after primary percutaneous coronary intervention (PCI). The potentially dismal consequences of MVO following STEMI were frequently studied, yet the majority of evidence arise from the Western world. The implication of its burden on adverse left ventricular remodeling (LVR) and clinical outcomes was not previously studied in Egyptian cohort. We aimed to assess MVO prognostic value, as determined by cardiac magnetic resonance imaging (CMR).

Methods: This prospective, observational, single-center study included 65 patients who underwent successful primary PCI for ST-segment elevation myocardial infarction (STEMI). They were subjected to paired, baseline (within 48 hours) and follow-up (6 months), cardiac magnetic resonance (CMR) scans. MVO, left ventricular (LV) volumes and functions were measured. The primary endpoint was a composite of mortality, heart failure hospitalization, non-fatal myocardial infarction, and stroke. The secondary endpoint was adverse LVR at six months CMR.

Results: MVO was observed in 65% of the patients. After a median follow-up of 23 months [IQR 6.5-26], the primary endpoint occurred in 15 patients (23%). MVO ≥2% of the LV mass was associated with more adverse events with odds ratio of 4.83 (95% CI 1.20 to 19.43; P= 0.026). Adverse LVR (defined as an increase ≥ 12% in LVEDV and LVESV) was encountered in 39.3% of the study group. MVO at a cut-off point > 2% had the highest sensitivity (87.5%) and specificity (72.97%) for predicting adverse LVR (AUC = 0.83, 95% CI= 0.71 to 0.91, P < 0.001). Baseline MVO was a strong predictor for adverse LVR (OR = 1.21. 95% CI 1.1 to 1.4, P < 0.001).

Conclusion: In a single-center study, MVO at a cutoff point > 2% of the LV mass was a predictor for adverse LVR. Larger studies are required to affirm this cut-off value.

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IMAGING – NIRS

400.08 Impact of Baseline Imaging of Non-Culprit Coronary Lesions and Adverse Events: Insight From LRP Study

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Background: Evaluating coronary atherosclerotic plaque using intravascular ultrasound (IVUS) and near-infrared spectroscopy (NIRS) can identify vulnerable plaques. We aimed to compare the presence or absence of baseline intravascular imaging of non-culprit lesions and their subsequent adverse events.

Methods: We identified patients from the Lipid Rich Plaque (LRP) study who had a non-culprit-lesion adverse event and divided them into 2 cohorts: those with lesions detected with NIRS-IVUS imaging at baseline and those with lesions not imaged at baseline.

Results: Overall, 73 patients had an adverse event (99 coronary segments) during the 24-month follow-up period. Among them,