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validates. It has the potential to improve efficiency as well as accuracy and precision of coronary vessel segmentation compared to manual segmentation by interventional cardiologists. Our objective is to compare the performance of human readers to the ML algorithm and against the readings from a Core Laboratory.

**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, plaques 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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**METHODS AND RESULTS** This is a prospective observational study. We recruited 51 patients with clinically suspected myocarditis presenting from 1st October 2020 till 31st March 2021. All patients were subjected to full history and examination, ECG, echocardiography, laboratory testing including troponin, cardiac magnetic resonance (CMR) with contrast and coronary angiography. Sera were obtained from all patients for detection of antibodies against the viruses by ELISA. Polymerase chain reaction (PCR) and reverse transcription-PCR were performed on serum to detect the genomic sequences of Parvovirus B19 (PV-B19), Coxsackie B Virus (CV), Human Herpes Virus 6 (HHV-6), Cytomegalovirus (CMV) and Epstein-Barr Virus (EBV). Out of 51 patients, 72.5% were males with age 39±16 years. We classified patients into 2 categories based on CMR results: Group A (CMR positive myocarditis) 12/51 patient (23.5%) and group B (CMR negative myocarditis) 35/51 (68.6%). Two thirds (n=31/47, 65.9%) were associated with antibodies against one or more of the viruses tested. Parvovirus B19 IgM 22 (46.8%), Coxsackie 16 IgM 34% (HHV-6 IgM 1 (2.1%). Eight cases (17%) showed multiple infections. Viral genomes could be amplified in the sera of 16/22 and 7/16 cases of Parvovi-B19 and Coxsackie viruses, respectively. Regarding LVEF at presentation, no significant difference was found between serology positive and serology negative patients. EMB was done for those with CMR positive findings, i.e. 12 patients. It showed evidence of viral types correlating with the serology findings in this group of patients.

**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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**CRT-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 31 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** Fifty-one 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) 35 (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 Coxsackie 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 Coxsackie viruses represent most common pathogens in our locality. (Clinical trial registration no. NCT04312490, STDF grant no. 26393)
Patients admitted to Cardiology Department (n=165)

Patients diagnosed as acute unexplained heart failure (n=355)

Suspected myocarditis* finally included (n=45)

Excluded patients with ischemic etiology by CMR

CMR positive myocarditis (n=12)

CMR negative myocarditis (n=35)

Positive Serology (n=8)

Negative Serology (n=4)

Positive Serology (n=23)

Negative Serology (n=12)

Recovered EF (n=12)

Poor EF (n=4)

Died (n=3)

6-month clinical and ECHO follow-up

NIRS

CRT-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 arises 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 STEMI following STEMI were frequently studied, yet the majority of evidence arises 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).

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 cutoff 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 confirm this cut-off value.

CRT-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, 41 patients (56.2%) had a non-culprit-lesion adverse event related to a coronary segment imaged at baseline, and 32 patients (43.8%) had a non-culprit-lesion adverse event adjudicated to a segment that was not scanned at baseline. Angiographic core laboratory analysis suggested that unscanned lesions were more often in the right coronary artery (~50%); branches of the left coronary artery (i.e., diagonal or left obtuse marginal arteries (~20%), smaller vessels, or more tortuous vessels, and less often in the left anterior descending or distal locations. There was a weak trend for acute severe events (adjudicated myocardial infarction and acute coronary syndrome) in patients with lesions not scanned at baseline (50.0% versus 36.6%, p=0.250) (Figure 1).

CONCLUSION In patients with follow-up non-culprit-lesion MACE, nearly half were not imaged with NIRS-IVUS at baseline. Because events related to non-imaged lesions were at least as severe as events related to imaged lesions, future clinical trials and clinical protocols should be designed to minimize this issue.