



Cardio Mag

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Dear Doctor,
Greetings from Micro Labs Limited. We are happy to bring you
“**Cardio Mag**”, which contains latest and interesting news in the
field of Cardiology.

This issue contains

-  ***Comparison of Stress Myocardial Perfusion Imaging vs
Coronary Computed Tomographic Angiography for
Invasive Vessel-Specific Coronary Physiology Diagnosis.***
-  ***A case of Painful left bundle branch lock***
-  ***A novel mobile blood analysis system***

*Should you require any specific article or medical information, please
feel free to contact us at medicalservices@microlabs.in*

Looking forward to your valuable feedback.

*Best Regards,
Medical Team, Micro Labs Limited*



1. Comparison of Stress Myocardial Perfusion Imaging vs Coronary Computed Tomographic Angiography for Invasive Vessel-Specific Coronary Physiology Diagnosis

Diagnostic evaluation of patients with stable chest pain is largely relied on stress myocardial perfusion imaging (MPI) and other functional tests for assessment of inducible ischemia.

Focusing on anatomic approaches on the detection of a stenosis are often considered incomplete without incorporation of physiologic parameters.

Aim of the study

To compare the diagnostic accuracy of anatomic (obstructive and non-obstructive atherosclerotic plaque) vs functional imaging measures for estimating vessel-specific invasive fractional flow reserve (FFR).

Methods:

A multicenter clinical trial of diagnostic accuracy with a cohort of patients referred for nonemergent invasive coronary angiography.

602 patients with signs and symptoms suggestive of myocardial ischemia from were included.

Patients underwent invasive coronary angiography with measurement of invasive FFR, coronary computed tomographic angiography (CCTA) quantification of atherosclerotic plaque and FFR by CT (FFR-CT), and also semiquantitative scoring of rest/stress myocardial perfusion imaging (by magnetic resonance, positron emission tomography, or single photon emission CT).

Generalized linear mixed models were derived and validated calculating the area under the receiver operating characteristics curve.

Primary end point was invasive FFR of 0.80 or less.

Results Of 602 patients, the mean age was 62 years, and 406 (66.7 %) were men. An invasive FFR of 0.80 or less was measured in 26.5% of 1727 vessels. In the derivation cohort, CCTA vessel-specific factors associated with FFR 0.80 or less were stenosis severity. The percentage of noncalcified atheroma volume, lumen volume, the number of lesions with high-risk plaque (≥ 2 of low attenuation plaque, positive remodeling, napkin ring sign, or spotty calcification), and the number of lesions with stenosis greater than 30%. CT of Fractional flow reserve was not additive to this model including stenosis and atherosclerotic plaque. Significant myocardial perfusion imaging predictors were the rest and difference scores. In the validation cohort, the areas under the receiver operating characteristic curve were 0.81 for CCTA vs 0.67 for myocardial perfusion imaging ($P < .001$).



Discussion:

Clinical guidelines support ischemia-guided management of a Focal coronary stenosis, based on evidence from several trials supporting FFR-Guided revascularization

In current trial, anatomic approach using CCTA, including multiple atherosclerotic plaque measures, demonstrated improved diagnostic accuracy as compared with functional assessment using rest/stress MPI for the prediction of invasive FFR.

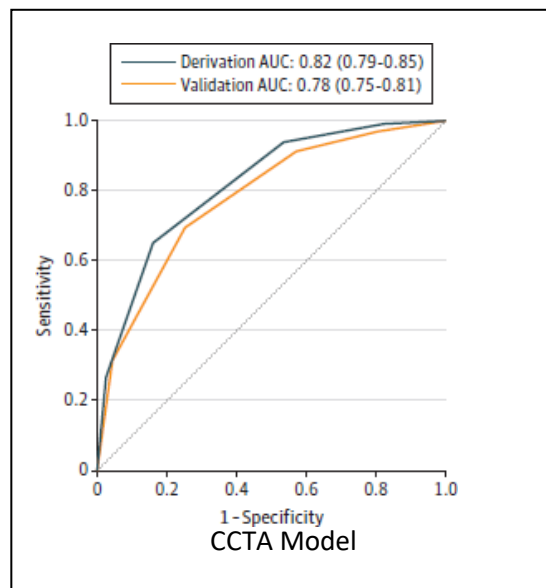
Current study, also provide unique insight and potentially a working model as to non-obstructive atherosclerotic disease factors influencing epicardial coronary artery ischemia.

Conclusion:

Coronary computed tomographic angiography was superior to myocardial perfusion imaging for the diagnosis of vessel specific FFR.

Reference:

Stuijzand WJ et al. Stress Myocardial Perfusion Imaging vs Coronary Computed Tomographic Angiography for Diagnosis of Invasive Vessel-Specific Coronary Physiology: Predictive Modeling Results From the Computed Tomographic Evaluation of Atherosclerotic Determinants of Myocardial Ischemia (CREDENCE) Trial. *JAMA Cardiol.* 2020 Dec 1;5(12):1338-1348.





2. A case of Painful left bundle branch block.

Painful left bundle branch block (LBBB) syndrome is a new-onset LBBB appearing simultaneously with anginal pain, without coexistent myocardial ischemia, resolving at the same time with the disappearance of LBBB. Current is a young male patient with painful LBBB syndrome.

Case presentation:

A 31-year-old male, current smoker, presented due to chest pain during effort for the previous 24 h. characteristics of the pain were indicative of typical angina.

Had similar episodes of angina previous month. The baseline 12-lead electrocardiogram (ECG) did not reveal any significant abnormality, apart from a subtle pattern of early repolarization in leads II, aVF, V5, and V6. Laboratory examinations, including serial measurements of myocardial enzymes, were normal.

A cardiac echocardiographic examination was within normal limits; left ventricular ejection fraction was 60%.

Next day, the patient underwent tread mill exercise stress test according the Bruce protocol. During maximum effort, at the end of the 12th minute (metabolic equivalents-METS: 9.7), having a heart rate of about 140 bpm LBBB appeared accompanied by chest pain, identical to the anginal pain that led the patient to seek medical attention.

LBBB possibly was rate-dependent because it disappeared immediately after the termination of the exercise while a few seconds later the angina was completely resolved.

In Subsequent coronary angiography no abnormality was detected. He was discharged on the 5th day with recommendations for avoidance of excessive exercise, smoking cessation, and for a 48 -h electrocardiographic Holter recording as an outpatient at a regular basis on the following week.

After a week, the analysis of Holter recording showed that the patient suffered from episodic LBBB at heart rates over 150 bpm with concurrent angina.

The rate-dependent LBBB had a low S/T ratio of 1.5. Reviewing the patient's Holter recordings, there was no evidence of occurrence of symptoms along with supraventricular premature complexes.

Subsequently, the patient was placed on bisoprolol 5 mg once daily. His clinical response was excellent and during a 1-year follow-up the patient did not suffer any anginal episode.



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Repeat Holter recording 6 months after the index hospitalization did not reveal rate-dependent LBBB (maximum heart rate: 130 bpm).

Discussion:

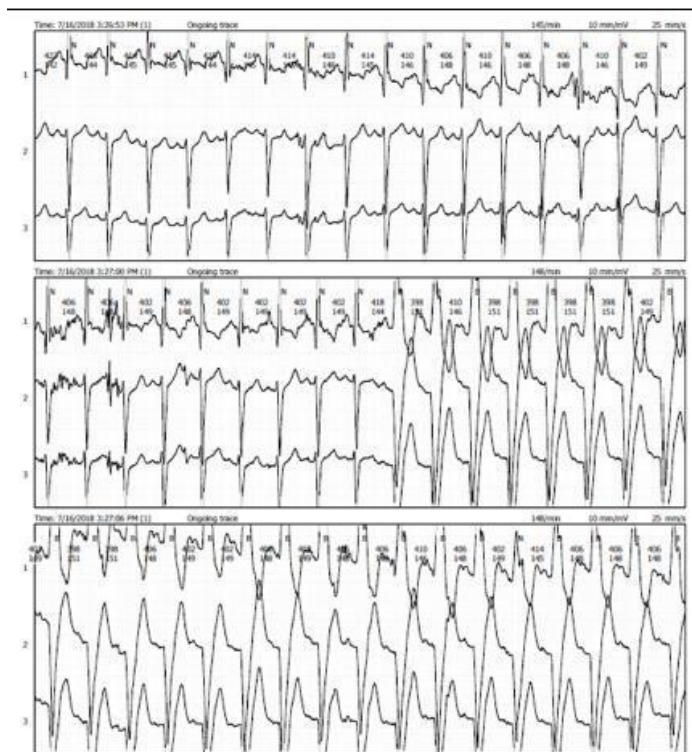
Causes of a new-onset LBBB include coronary artery disease, hypertension, and cardiomyopathies. Of note, LBBB can be transient or episodic due to a transient blockade of conduction in a specific point of the conduction system.

Temporary LBBB is less common than the temporary right bundle branch block (only 25% of phase-3 blocks have a LBBB morphology).

predominant theory for the origin of pain in Painful LBBB is the dyssynchronous ventricular contraction during the appearance of LBBB.

In general, the painful LBBB syndrome has a good prognosis, given that it is not related to structural heart disease.

Submaximal aerobic exercise had been considered a successful therapy, resulting in an increase of the threshold of LBBB onset.



Conclusion:

Painful LBBB syndrome is rare. Failure to respond to bradycardic agents should direct the management to His bundle pacing or biventricular pacing.

Reference:

Konstantinou CS et al. Painful left bundle branch block: A syndrome with a particular clinical significance. J Cardiol Cases. 2020 Jul 29;22(6):273-275.



3. A novel mobile blood analysis system



A novel mobile computer for the epoc Blood Analysis System has been designed. The Android smartphone provides an app-based intuitive interface that replaces the older interface that had over two dozen physical buttons and a relatively low resolution screen.

The accompanying app is designed to include suggestions on how to perform various tests and is



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optimized to get through procedures quickly, particularly in seriously ill patients.

It is an effective point-of-care testing that requires instruments that deliver quick results, easy to use, secure and provides quality test results

New epoc System with new NXS Host offers clinical workflow improvements so that frontline healthcare workers can get comprehensive critical care test results quickly and accelerate care for patients.

An improved interface, also comes with more powerful processing capabilities and a larger built-in memory, allowing for faster workflows, automatic and secure reporting of results, and consistency during every test.

Reference:

Available at: <https://www.medgadget.com/2020/12/siemens-epoc-nxs-host-mobile-computer-cleared-to-help-with-point-of-care-blood-testing.html>. Accessed on 13-01-2021.



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