



Cardio Mag

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HAPPY
NEW YEAR

2021

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

- ✚ **Efficacy of Evinacumab in Patients with Refractory Hypercholesterolemia.**
- ✚ **A case of aneurysm of Proximal Left Main Coronary Artery presenting as ST Elevation Myocardial Infarction**
- ✚ **Flexible Patch Monitors for Heart**

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. Efficacy of Evinacumab in Patients with Refractory Hypercholesterolemia.

Patients with refractory hypercholesterolemia have high low-density lipoprotein (LDL) cholesterol levels despite treatment with lipid-lowering therapies at maximum tolerated doses, have an increased risk of atherosclerosis.

Current study aim is to evaluate efficacy and safety of subcutaneous and intravenous evinacumab, a fully human monoclonal antibody against angiopoietin-like 3.

Methods:

double -blind, placebo-controlled, phase 2 trial involving 270 patients with or without heterozygous familial hypercholesterolemia who had refractory hypercholesterolemia, with a screening LDL cholesterol level of 70 mg per deciliter or higher with atherosclerosis or of 100 mg per deciliter or higher without atherosclerosis.



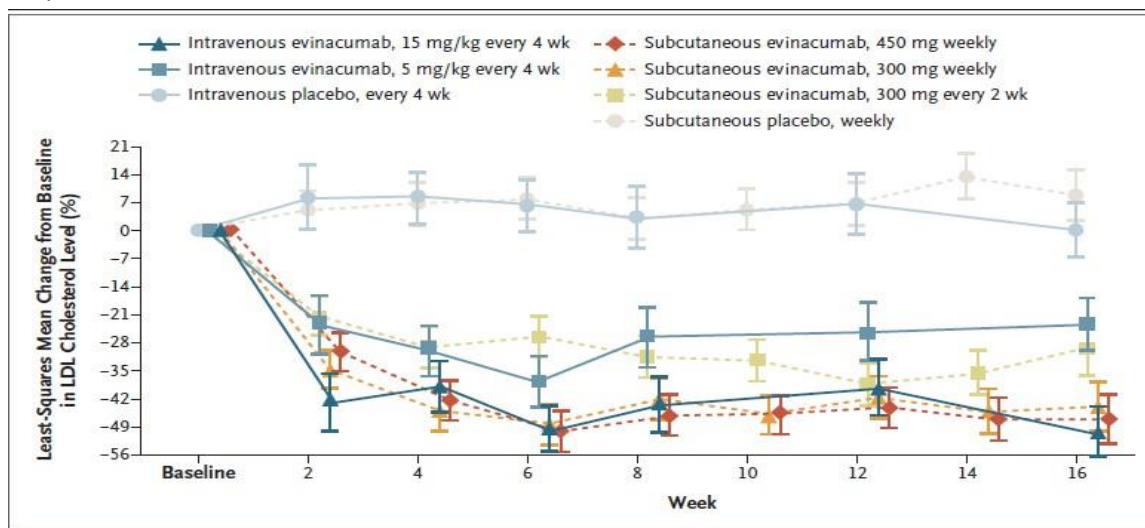
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Patients were randomly assigned to receive subcutaneous or intravenous evinacumab or placebo. The primary end point was the percent change from baseline in LDL cholesterol level at week 16 with evinacumab as compared with placebo.

Results:

Mean change from baseline in the LDL cholesterol level between the groups assigned to receive subcutaneous evinacumab at a dose of 450 mg weekly, 300 mg weekly, and 300 mg every 2 weeks and the placebo group were -56.0, -52.9, and -38.5 percentage points, respectively. ($P < 0.001$ for all comparisons).



Discussion:

The use of PCSK9 inhibitors in combination with other lipid-lowering therapies reduces the risk of major adverse cardiovascular events and reduces the LDL cholesterol level by 50 to 60%.

ANGPTL3 inhibition lowers both the LDL cholesterol level and the apolipoprotein B level substantially. The addition of evinacumab to standard-of-care lipid-lowering therapies that include PCSK9 inhibitors in patients with refractory hypercholesterolemia may potentially facilitate a greater number of patients attaining guideline-defined target LDL cholesterol levels.

In current study, Treatment with subcutaneous or intravenous evinacumab prompted a reduction in the LDL and HDL cholesterol levels.

Conclusion:

Use of evinacumab significantly reduces the LDL cholesterol level, by more than 50% at the maximum dose.

Reference:

Rosenson RS, Burgess LJ, Ebenbichler CF, Baum SJ, Stroes ESG, Ali S, Khillan N et al. Evinacumab in Patients with Refractory Hypercholesterolemia. *N Engl J Med*. 2020 Dec 10;383(24):2307-2319.



2. A case of aneurysm of Proximal Left Main Coronary Artery presenting as ST Elevation Myocardial Infarction.

Coronary artery aneurysm (CAA) is a rare cardiac anomaly with a reported incidence of 0.3-4.9% of patients who undergo coronary angiography.

Commonest culprit vessel is the Right Coronary Artery (RCA), followed by Left Circumflex (LCx) and Left Anterior Descending (LAD). Left main coronary aneurysms are extremely rare in clinical practice.

Current is a case of aneurysm of Proximal Left Main Coronary Artery.

Case presentation:

A 46-year-old male presented with a 10-hour history of central chest pain, radiating to the left arm and upper back. No history of shortness of breath, palpitations, or exertional symptoms; no history of headache, dizziness, or syncope; and no history of fever or respiratory symptoms.

History of previous coronary artery disease with percutaneous coronary intervention to Left Anterior Descending and Ramus arteries is present. Other cardiovascular risk factors include hypertension, dyslipidemia, smoking, and first-degree family history of premature coronary artery disease.

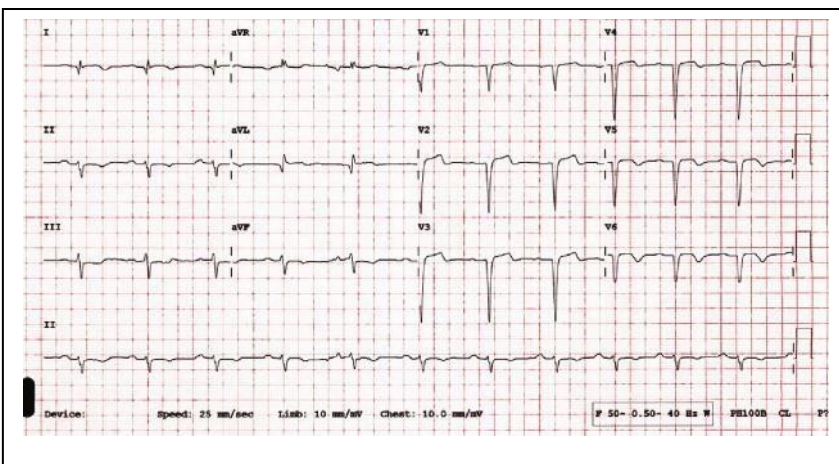
Electrocardiogram (ECG) showed ST-segment elevation and T wave inversion in Leads I, aVL, and V1-V6. ST segment depression in II, III, and aVF confirms acute STEMI as shown in figure.

Urgent coronary angiography revealed long left main aneurysm with thrombus, stent thrombosis of LAD, patent Ramus, ectatic RCA, and severe left main ectasia.

He was advised in other hospital to have urgent Coronary Artery Bypass Grafting (CABG). The patient came to hospital for a second opinion regarding

surgical versus medical management. patient's pain scale was 1/10. Vitals were stable.

ECG still showed the same changes. Examination of the cardiovascular and respiratory systems was normal.





Complete blood count, C-reactive protein (CRP), urea and electrolytes, prothrombin time (PT), and international normalized ratio (INR) were all within normal limits. Troponin I was 0.668 ng/ml (<0.034), and creatine kinase (MB fraction) was 16.6 ng/ml (0.00-5.10).

Echocardiography showed impaired left ventricular (LV) function with an ejection fraction (EF) of 35-40%. The septum and apex were akinetic. Hypokinesia was seen in anterior and inferior walls. Dilated LV and LV apical clot were noted.

The patient was maintained on antiplatelet and anticoagulant therapy. Revascularization strategy was discussed. It was a one-stage procedure, as the initial angiography showed LAD stent thrombosis, but when the second angiography was done, there was spontaneous recanalization of the LAD.

A decision to go ahead with PCI was done, because if surgical revascularization was performed, there would be a risk of thrombus formation in the LMCA with distal embolization to the LAD/LCx resulting in STEMI.

Coronary angiography revealed a long leftmain coronary artery aneurysm measuring 9.8mm—maximum diameter. This was treated with a size 5 × 24mm coronary stent, and there was spontaneous recanalization of the LAD.

Intravascular ultrasound (IVUS) confirmed excellent results.

Discussion:

Left main coronary artery aneurysms (LMCAA) are extremely rare, with a reported incidence of 0.1% in clinical practice.

Many studies have reported an increased incidence of CAA after coronary angioplasty with drug-eluting stents (DES). The selection of coronary stents is very important, and the diameter of the coronary artery aneurysm plays an important role with regard to post procedure complications like restenosis and in-stent thrombosis.

Conclusion:

A case of aneurysm of LMCA was treated percutaneously with the deployment of 5 × 24mm stent, with excellent angiographic and clinical outcome.

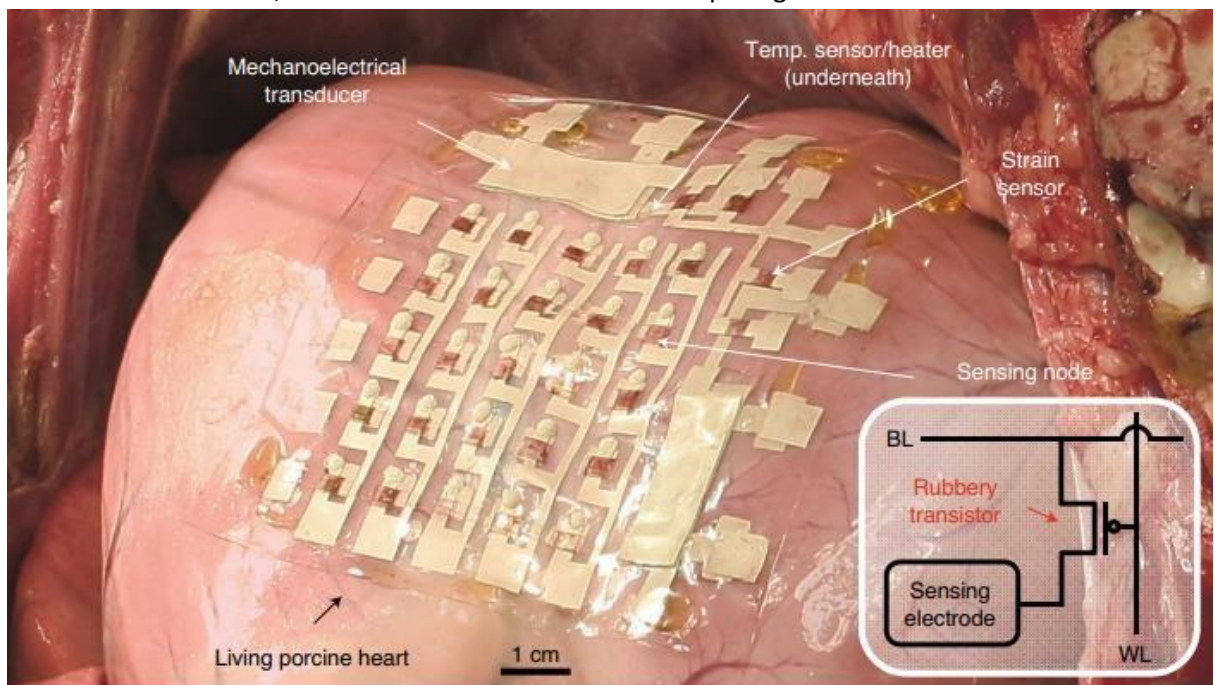
Reference:

Vinod VC et al. Proximal Left Main Coronary Artery Aneurysm Presenting as ST Elevation Myocardial Infarction Treated by Stenting. Case Reports in Cardiology. 2020; 8833917: 1- 6 pages



3. Flexible Patch Monitors for Heart.

Researchers have developed a flexible epicardial patch which can monitor heart function and even administer treatments, such as thermal ablation and heart pacing.



Device can harvest power directly from the movement of the beating heart and its flexibility means that it conforms well with the epicardial surface, allowing it to monitor the heart at various locations simultaneously.

Currently, implantable devices that are used to monitor and treat the heart, such as pacemakers, largely consist of rigid components, meaning that they do not blend well with moving cardiac muscle. This latest development aims to change this. The device marks the first time bioelectronics have been developed based on fully rubbery electronic materials that are compatible with heart tissue, allowing the device to solve the limitations of previous cardiac implant

Since the device is flexible, it is less likely to damage the heart muscle as it beats, and it can make close



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contact with the epicardial surface over a wide area, allowing for more accurate and comprehensive data collection.

The patch can collect a wide variety of medically relevant data, including electrophysiological activity, temperature, and strain.

It can also make therapeutic interventions in the form of thermal ablation and heart pacing, and can harvest energy from the movement of the heart, potentially meaning it may not need an external power source.

Rubbery epicardial patch is capable of multiplexed ECG mapping, strain and temperature sensing, electrical pacing, thermal ablation and energy harvesting functions.

Reference:

Sim K, Ershad F, Zhang Y, Yang P, Shim H, Rao Z et al. An epicardial bioelectronic patch made from soft rubbery materials and capable of spatiotemporal mapping of electrophysiological activity. Nature Electronics. 2020;1-12.



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