

Non-invasive Solution to detect early CAD

&

Cardiovascular Functional Status

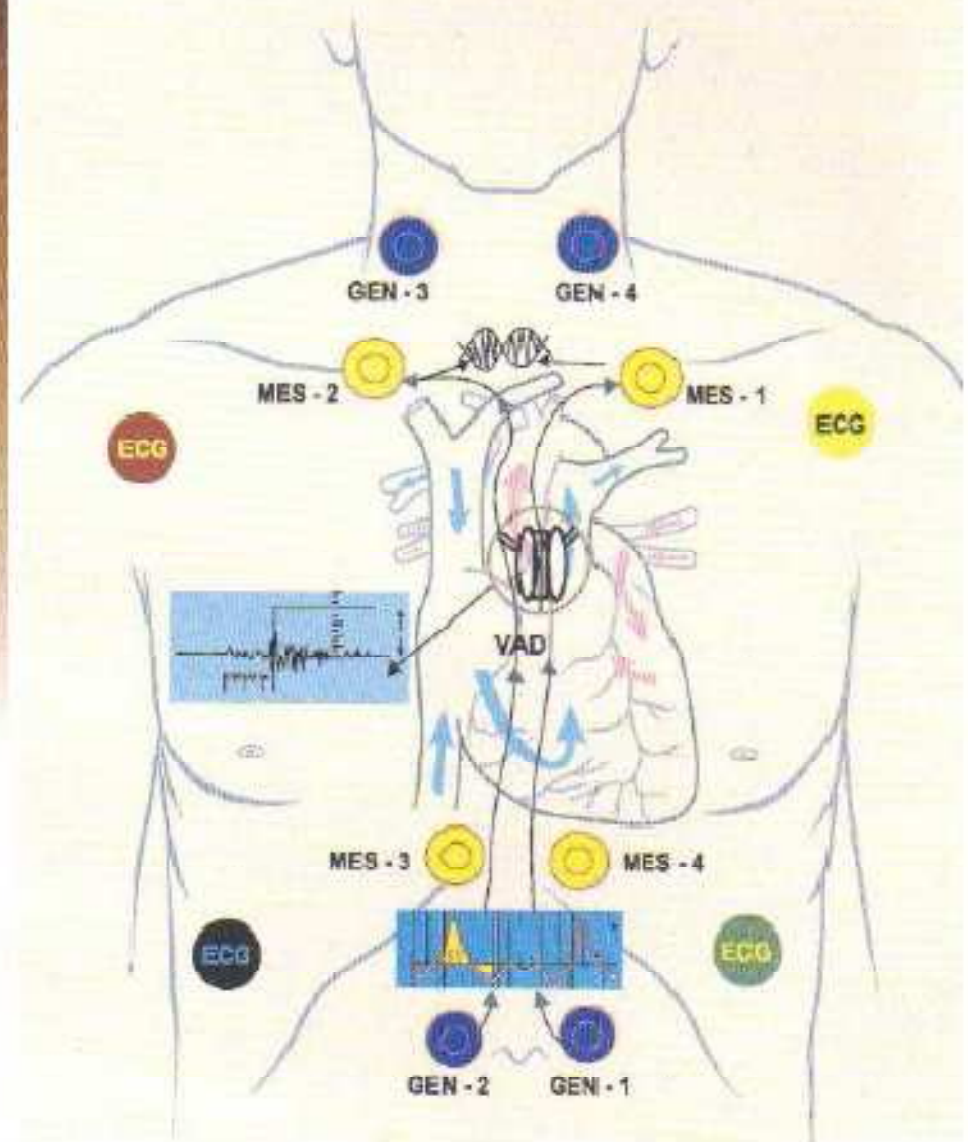


**HAEMOSEIS
256**

3 - Dimensional Cardiovascular Cartography

*"Measure what is measurable
and make measurable what is not so".*

- Galileo



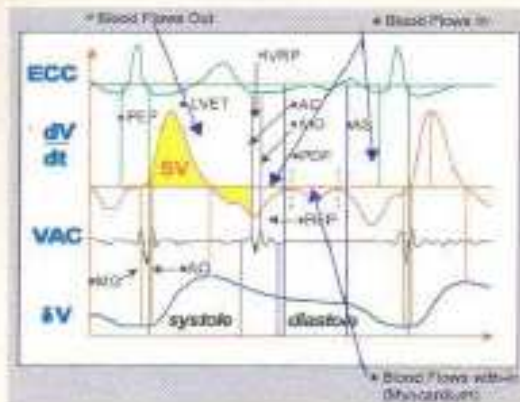
HAEMOSEIS 256 3D-CCG the future of Cardiovascular Diagnosis & Management

Functional haemodynamic and Physiology of the human circulatory system are a very complex aspect of the human body, thus having great importance to modern day diagnosis and treatment.

The focus is now changing from Structure to Function.

It is well understood that functional correction is possible by modern day medicine and the vacuum till recent was only the aspect of measuring and understanding the complex physiological interactions of the health and disease.

Today using an advanced Patented technology called *Trans-Aortic Signal Wave Modulation (TASWM) and Flow Turbulence Accelerometry (FTA)*, a new device - is born.



The Cardiac Cycle - Non-Invasively obtained. dV/dt Curve. Time related with other physiological curves, as produced by HAEMOSEIS 256

For the first time in human history, a technology that was primarily meant for seismology, aerospace exploration, warfare and non-linear complex systems analysis is being used in the Medical Science.

Medical and Biological Cartography will go a long way in mapping the structural functions of the Brain, Kidney and other organs of the body in the years to come and change the way medical science looks at structural functions in Health and Disease.

The future Patient Management will be transforming from Empirical Medicine to Functional Medicine ...



Advanced imaging technique, which puts complex theory into simple practice.

The first application of TASWM and FTA. Modelling and real time-space simulation is in the mapping of the Cardiovascular System, to understand the tremors deep inside the chest cavity.

3D-CCG is the first commercial device Developed and Invented by scientists and engineers of the Centre for Advanced Research and Development (CARD), the research wing of Organization De Scalene.

The Device is simple to use, affordable, non-invasive and extremely safe.

The 3D-CCG produces the complete cardiovascular physiological profile of a Patient consisting of over 60 cardiovascular functional parameters that directly aid in perfect diagnosis and perfect treatment.

HAEMOSEIS 256 3D-CCG, the Most Comprehensive Functional Physiology Study Provides...

- Stroke Volume • Stroke Index • Cardiac Output and Index
- Contractility • Acceleration of blood ejected • Pre-Load
- After-Load • Blood pressures • LV ejection rate • LVEF
- LV Regurgitant fraction • Left cardiac work • All systolic and diastolic timings • Electromechanical activities • ANS Predominance
- Pulmonary Air Retention • Pulmonary fluid Retention • Pulmonary Capillary Pressure • Pulmonary Vascular Resistance.

Diagnostic, Therapeutic and Prognostic Value of 3D-CARDIOVASCULAR CARTOGRAPHY STUDY



Easy to understand reports and images. Does not take time to master.

- Regional and Global Myocardial Blood flows • Mean Coronary Driving Pressure • Coronary Vascular Resistance • Coronary flow Reserve
- Global Cardiac Efficiency • Left Ventricular Stroke Work • Collateral flow Index • Coronary vasodilatory reserve • Pressure-Volume Loops
- Mitral and Aortic Valve Orifice area • Angular Frequency of Heart Rate
- Angular Frequency of Inter-beat-interval • Early after Depolarisation
- Delayed after Depolarisation (Arrhythmogenicity) • TFF-a (Thrombus Formation Factor) • Arterial Compliance (Arterial Elasticity)
- Ventricular Compliance (Myocardial Stretch) • Total Myocardial Burden (strain) • Left Ventricular Relaxibility • Adrenergic Activity
- Hypertention-Hypertrophy analysis • Regional effective coronary narrowing Index • Body Fat Mass • Basal Metabolic Rate.

Features of **HAEMOSEIS 256** :

- Non-Invasive, Dynamic, continuous real time monitoring - providing early detection of functional changes and reliable detection of coronary artery disease by measurement of myocardial blood flow.
- Affordable, simple procedure conducted by a trained technician and can be interpreted by any Doctor after a 6 days training.
- Measures, evaluates & computes 60 vital Applied Physiological parameters non-invasively in about 3 to 4 minutes.
- Beat to Beat Pressure, Volume and Time Changes.
- Complies with international standards.

Advantages of **HAEMOSEIS 256** :

- The only way to follow, neonates where invasive techniques are impossible.
- Reliable detection of coronary artery disease and its severity.
- Understanding underlying causes of Chest Pain, in the absence of CAD.
- Forecast signal of myocardial ischaemia, prior to development of angina.
- Early detection of CAD in asymptomatic subjects.
- Determination of actual working point of the heart and establish working capacity in post-infarction recovery.
- Measurement of iontrop effects.
- Establishing ANS activity in Patients with Diabetic Neuropathy.
- Establishing and Controlling Thrombogenicity in Cardiac patients.
- Establishing Arrhythmogenic Focus of EAD and DAD in CAD and Myocardial Diseases.
- Establish Proneness to Sudden Cardiac Death Syndrome (SCDS)
- Measurement of Arterial Elasticity and thus the endothelial function and the progression of atherosclerotic process in Diabetes and Hypertension.
- Measurement of Ventricular Elasticity and Diastolic Stretch in Hypertrophy analysis.
- In Anaesthesia – during general narcosis and regional techniques.
- Pre-operative assessment of Cardio-Pulmonary fitness.
- In critical care Medicine - for monitoring vital functions non-invasively and understand drug action.
- Optimising AV-delay in dual chamber pace makers.
- Establishment of fluid overload during dialysis, plasmapheresis.
- Early detection of pulmonary oedema, before the development of clinical symptoms. Early detection of COPD, its progression, and effect of treatment.
- Aids in the decision making in choosing the line of management.
- Follow up functional progress during medical management.
- Follow up of CABG and PTCA patients.
- Establishment of functional effectiveness of Drugs and Medicines.
- Establishment of Pliability of Mitral and Aortic Valves in valvular Patients.
- Can be used effectively before, during and after procedures like External Counter Pulsation (ECP) or Intra-Aortic Balloon Pump (IABP), where measurement of Coronary Perfusion Pressure, Coronary Blood flow, Valvular Pliability is Important.
- As a real time teaching Aid in Functional and Applied Physiology at Graduate and Undergraduate levels in Medical and Nursing schools

Regional Blood Flow reduction to Culprit vessel correlation

n=273	Primary Presence of CAD	Anterioseptal Region (LAD)	Inferioseptal Region (RCA)	Lateral Region (LCX)
Sensitivity	91%	83%	80%	72%
Specificity	92%	76%	74%	80%
PPA	98%	85%	80%	81%
NPA	75%	74%	74%	70%
Mean Accuracy	91%	81%	78%	75%

*Source : IEEE CBMS-2001, 26-27, July 2001, National Institutes of Health, Bethesda, Maryland, USA

Among one of the most accurate methods to detect early CAD.

Users Today...

Today, after three years of Commercial availability of 3D-CCG, it is being used for various applications in over 30 centres in about 11 countries. In India alone there are about 19 Centres and the numbers are growing as more and more patients are getting benefited and doctors now realise that there is a lot more they can contribute to their patients health with 3D-CCG technology.



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