

Abstract Information

Abstract Submitter: Doctor Canali Guido - guido.canali@sacrocuore.it
Event: ESC Congress 2012
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Number: 80640
Title: Non Invasive Assessment of Relevant Coronary Occlusion through Mathematical Analysis of Spectral ECG Components (MCG) with comparison with Coronary Angiography in Symptomatic Patients
Evaluation Topic: 09.11 - ECG and arrhythmia analysis

Session Information

Number:	304	Session Title:	Poster session 4
Session Date:	27 Aug 2012	Session Time:	14:00 - 18:00
Location:	Posters - Village 10		

Your poster must be set up between 13:30 and 14:00, removed between 18:00 and 18:30 and be on display from 14:00 until 18:00.
Your presence is requested from 15:30 to 16:30, during the coffee break.

Abstract Authors

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Abstract Content

Risk assessment of relevant coronary occlusion in symptomatic patients at Emergency Room is essential for a correct management of these patients.

The Mathematical Multifunction Analysis of ECG Spectral Components (Multifunction CardioGraphy – MCG Premier Heart – USA) allows to extract all the spectral information content of ECG, also at the level of micro-Volt, to try to evaluate micro-ischemia on resting ECG high resolution digital recordings but not visible on standard ECG.

Our experience is based on more than 110 patients, with any indication for Coronary Angiography, and it is unique because patients received CA analysis of collateral circulation and detailed analysis of the inherent pathologies of False Positive / Negative patients to try to establish the limit of application of the method. Endpoint: Detection of hemodynamically relevant coronary stenosis via CA.

Results on 110 patients with CA available (on total of 116 patients recruited) performed from 1 to 25 hours after MCG.

21 patients were excluded from analysis: 9 with concomitant important cardiovascular pathologies (Valvular, Dilated Cardiomyopathy, etc); 4 with double vasodilator therapy (nitrates and diltiazem); 5 with CA borderline results (i.e.: Occlusion value is at limit); 3 with Poor Quality MCG.

Total included patients: 89; MCG identified 45 True Positive, 31 True Negatives, 12 False Positive and 1 False Negative; Sensitivity: 97.8%, Specificity: 72.0%, PPV: 78.9%, NPV: 96.8%

Discussion: Sensitivity is higher than other published papers because we have used a more sensitive criteria for MCG analysis (Score ≥ 3 instead of Score ≥ 4). Such a high Sensitivity value (97%), allows a very safety delay of the CA procedure and/or a late elective non-invasive test. Specificity is lower than published papers, but our patients are consecutive and most of the 12 patients False Positive are diabetic or hyperglycemia or hypertensive. These patients are therefore anyhow with microcirculation problems. We have analyzed the presence of collaterals in the 6 patients with positive CA (>70% occlusion or >50% occlusion in Coronary Main Artery) and negative MCG. Most of these patients had CA visible collaterals that improve flow at microcirculation level despite the presence of >70% occlusion.

Conclusion: MCG method is a fast, risk/radiation free and low expensive method for Non Invasive Assessment of Relevant Coronary Occlusion. High Sensitivity of this method may allow delaying CA or other diagnostic modalities available for symptomatic patients based on MCG results for a better management of these patients.