

INTERNATIONAL SOCIETY FOR COMPUTERIZED ELECTROCARDIOLOGY
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Before 1 December 2004 email the abstract and submitter information as an attachment in MSWord format (*.doc) or Rich Text format (*.rtf).

REGULAR SUBMISSIONS:

Dr. Charles Antzelevitch
Email: ca@mmrl.edu
Phone: 315-753-3217

JOS WILLEMS YOUNG INVESTIGATORS COMPETITION

Dr. Janice M. Jenkins
Email: jenkins@umich.edu
Phone: 312-540-9697

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Using Simultaneous ECG and Acoustical Data to Evaluate Patients Undergoing Echocardiographic Evaluation

Michel Zuber, MD, Peter Kipfer, MD, Patti Arand, PhD, Peter Bauer, PhD and Robert Warner, MD
Facharzt and Inovise Medical, Inc., Othmarsingen, Switzerland, Frauenfeld, Switzerland and Portland, OR, USA

Background: Hemodynamic abnormalities can produce ECG changes. For example, the ECG evidence of left ventricular hypertrophy (LVH) is a consequence of the hemodynamic abnormalities that produced the LVH. However, we hypothesized that abnormal hemodynamics are more likely to predict the presence of a third heart sound (S3) than of ECG findings.

Methods: We performed recordings from 46 ambulatory patients using Audicor™, a device that records and algorithmically interprets simultaneous 12-lead ECG and acoustical data. We determined the abilities of BNP and of 8 echocardiographic parameters of cardiac function to predict an S3 and the ECG findings of LVH, prior myocardial infarction (MI) and ST-T abnormalities with sensitivity/specificity $\geq 50\%/90\%$.

Results: The following table shows the results (sensitivity/specificity):

Parameter	S3	LVH	ST-T abn	Prior MI
BNP	83/92	--	--	--
EF	--	58/94	--	--
E	80/92	--	--	--
EA ratio	50/95	--	--	--
T decel	60/97	--	56/100	--
E'	--	--	--	--
EE' ratio	--	73/91	--	--
Large LA	67/92	--	--	--
Hi diast pressure	67/94	--	--	--

Conclusions: The electronically recorded S3 is associated with a wider range of hemodynamic abnormalities than is ECG evidence of LVH, ST-T or prior MI and can therefore augment the diagnostic capabilities of the ECG.