

Accurate Murmur Recognition by Cardiologists – Premature Requiem or Phoenix Rising?

Yassir Nawaz MD

Lehigh Valley Health Network, Yassir.Nawaz@lvhn.org

Matthew W. Martinez MD

Lehigh Valley Health Network, matthew_w.martinez@lvhn.org

Michael J. Barrett MD

Lehigh Valley Health Network, Michael_J.Barrett@lvhn.org

Follow this and additional works at: <http://scholarlyworks.lvhn.org/medicine>

 Part of the [Cardiovascular Diseases Commons](#), and the [Medical Sciences Commons](#)

Published In/Presented At

Nawaz, V., Martinez, M. & Barrett, M. (2014, June, 22). *Accurate Murmur Recognition by Cardiologists – Premature Requiem or Phoenix Rising?* Poster session presented at the Complex Cardiovascular Catheter Therapeutics, Orlando, FL.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

Accurate Murmur Recognition by Cardiologists – Premature Requiem or Phoenix Rising?

Yassir Nawaz MD, Matthew Martinez MD, Michael Barrett MD
Lehigh Valley Health Network, Allentown, Pennsylvania

Disclosures: None.

Introduction

- The emergence of an armamentarium of cardiac diagnostic tools over last three decades has led to a decline in interest in the time-honored skill of cardiac auscultation.¹
- Cardiac auscultation not only offers important clinical information but also is a cost-effective skill to decide on additional tests e.g. echocardiography.²
- It has been shown in various studies that the majority of echocardiography tests are normal when performed for evaluation of systolic murmurs.³
- This fact highlights the need for improvement in proficiency of cardiac auscultation skills in physicians.

Objectives

The objectives of this study were twofold:

- To assess the current accuracy of cardiac auscultation in cardiologists since auscultation will now be tested on the ABIM cardiology boards.
- To assess the impact of a brief intervention on their proficiency.

Methods

- 1244 Participants (cardiologists, Fellows, CRNPs) attending a national cardiology meeting from 2011 to 2013 were assessed on their ability to recognize murmurs.
- A pretest evaluated the participant's ability to recognize heart sounds prior to the learning module.
- Each of these learning modules consisted of 200 repetitions of each heart sound with phonocardiograms and echocardiographic images lasting 30 minutes.
- The heart sounds were retested in a post-test immediately afterwards.

Basic Murmurs

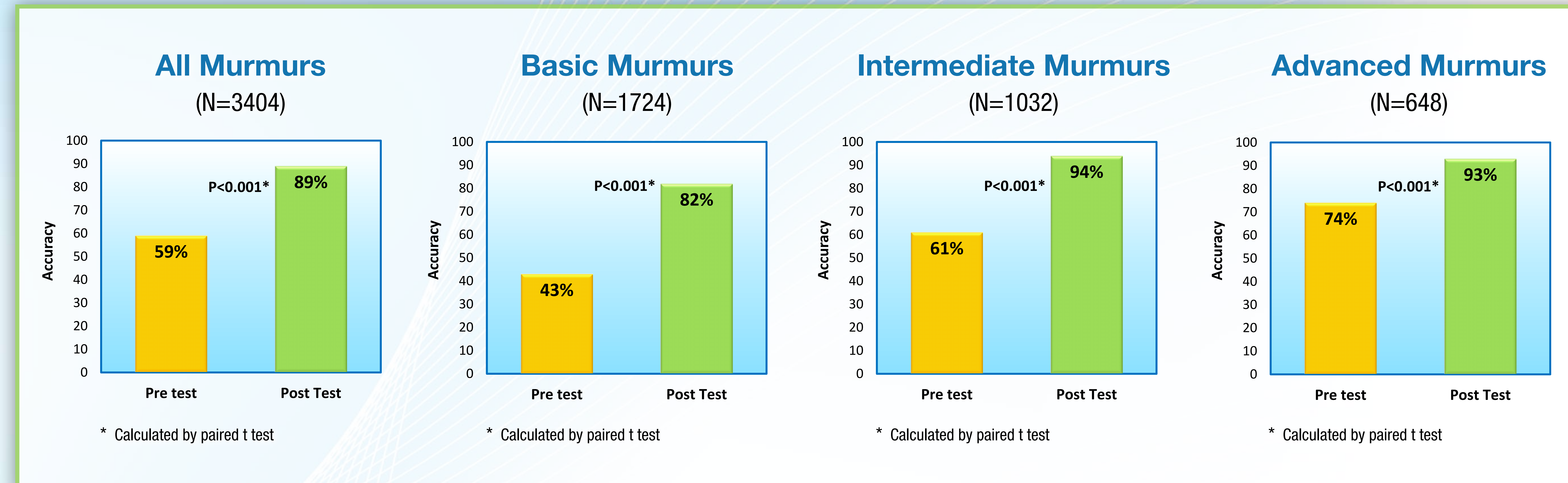
- Aortic Stenosis
- Mitral Regurgitation
- Innocent Murmur
- Aortic Regurgitation
- Mitral stenosis

Intermediate Murmurs

- Bicuspid Aortic Valve
- Mitral Valve Prolapse
- Hypertrophic Obstructive Cardiomyopathy
- Atrial Septal Defect
- Patent Ductal Arteriosis

Advanced Murmurs

- Aortic Stenosis and Aortic Regurgitation
- Mitral Stenosis and Mitral Regurgitation
- Variations of Aortic Regurgitation
- Variations of Mitral Regurgitation



Discussion

- Psychoacoustic research has shown that there are large gains in the performance of an auditory task during a training session followed by slower but continued improvements afterward.⁴
- In addition, intensive repetition, similar to what we used in this study, improves the recognition of complex auditory sounds.⁵
- This intense repetition is the missing element in the current teaching of cardiac auscultation with resultant sub optimal proficiency.
- Sztajzel et al. found that the diagnostic accuracy of cardiac auscultation for cardiologists across all heart murmurs was 57%.⁶
- Our study, comprising of one of the largest cohort of practicing cardiologists, also suggests that proficiency of cardiac auscultation in cardiologists is not optimal.
- We showed that with intense repetition there is a significant improvement in recognizing various heart sounds.

Limitations

- Limitations of our study include the element of selection bias given the volunteer nature of the participants.
- We believe that the paradoxical increase in baseline accuracy in cardiologists from basic to advanced murmurs likely resulted from selection bias by which the physicians self selected themselves based on their level of comfort with various heart sounds.

References:

- Marcus FI: The lost art of auscultation. Arch Intern Med. 1999 Nov 8;159(20):2396.
- Craige E: Should auscultation be rehabilitated? N Engl J Med. 1988 Jun 16;318(24):1611-3.
- Etchells E, Bell C, Robb K: Does this patient have an abnormal systolic murmur? JAMA. 1997 Feb 19;277(7):564-71.
- Atienza M, Cantero JL, Dominguez-Marin E: The time course of neural changes underlying auditory perceptual learning. Learn Mem. 2002;9:138-150.
- Menning H, Roberts LE, Pantev C: Plastic changes in the auditory cortex induced by intensive frequency discrimination training. Neuro-Report. 2000;11:817-822.
- Sztajzel JM, Picard-kossovsky M, Lerch R, Vuille C, Sarasin FP: Accuracy of cardiac auscultation in the era of Doppler-echocardiography: a comparison between cardiologists and internists. Int J Cardiol. 2010 Feb 4; 138(3): 308-310.

© 2014 Lehigh Valley Health Network

A PASSION FOR BETTER MEDICINE.™



610-402-CARE LVHN.org