

APPENDIX A

Instruction Sheet Blood Pressure Response to the Valsalva Maneuver

Background

The arterial blood pressure has a four stage response to the Valsalva maneuver and includes an "overshoot" phase where the blood pressure rises higher than its baseline. The overshoot phase occurs after the patient relaxes from the Valsalva. In patients with poor ejection fractions, the overshoot has been shown not to occur.

Design

The blood pressure response of patients suspected or known to have heart failure will be recorded at three different sphygmomanometric readings as the Valsalva maneuver is performed.

Purpose

Compare the presence or absence of the blood pressure overshoot response with the measured echocardiographic ejection fraction.

Apparatus

Sphygmomanometer

Stethoscope

Watch or clock with a second hand

Preparation:

1. The patient will be selected for you and may or may not have been tested on by another examiner previously.
2. To keep this trial blinded, do not reveal your results to other examiners.
3. Instruct the patient on performing the Valsalva maneuver (strain down against a closed glottis) and practise until they perform it correctly:
 - a) Place patient in the supine position.
 - b) Initiate the maneuver at the end of a normal inspiratory effort.
 - c) Ensure the maneuver was effective by checking for a florid face, distended neck veins, and increased abdominal muscle wall tone.
 - d) The patient must be able to continue straining for 10 seconds.

4. Ensure the Sphygmomanometer has no leak.
5. Read the next section carefully.

Procedure

1. While patient is breathing quietly, measure their systolic blood pressure.
2. Raise the blood pressure cuff 10 mm Hg above the systolic pressure that was just measured, and carefully keep it at that level.
3. Ask the patient to perform the Valsalva maneuver.
 - a) After 10 seconds of constant-strength straining, ask the patient to relax and resume normal quiet breathing.
 - b) Auscultate for Korotkoff sounds throughout the test, but especially in the 15 seconds after completing the Valsalva maneuver.
4. Record the presence of Korotkoff sounds at any time during the 15 seconds after the Valsalva maneuver has completed.
5. Repeat this procedure two more times except change instruction 2 to read:
 - a) "20 mm Hg", and
 - b) "30 mm Hg" above the systolic pressure.
6. Fill in the Results on the next page.
7. Please comment on any difficulties at the back of the results page. These are some contemplated problems:
 - a) were these instructions difficult to understand, and why?
 - b) was the patient unable to follow the instructions, or to complete the maneuver three times and why?
 - c) was the blood pressure response difficult to interpret in any way, and how?
 - d) did the examination become easier with more practice?
 - e) other???

APPENDIX B

Data Sheet Blood Pressure Response to the Valsalva Maneuver

Examiner Information:

Level (SI, R1, R2, ...staff)	
Date of exam	
Time of exam	

Patient Characteristics:

ID#	
Age	
Gender	

Patient Past History:

	Present	Absent	Not Known
M.I.			
Diabetes			
Hyper-tension			
Alcohol Abuse			

Patient Medications:

	Present	Absent	Not Known
CCB			
Nitrates			
Beta-Blocker			
ACE-Inhibitor			

*CCB = Calcium Channel Blocker

BLOOD PRESSURE RESPONSE TO THE VALSALVA MANEUVER:

(Korotkoff Sounds in the 15 seconds after the Valsalva maneuver has been released.)

SYSTOLIC BLOOD PRESSURE Above Baseline	Korotkoff Sounds PRESENT	Korotkoff Sounds ABSENT
10 mmHg		
20 mmHg		
30 mmHg		

Echocardiogram Results:

Ejection Fraction	
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