

Introduction

- Cardiovascular Disease (CVD) is the leading cause of maternal mortality², and 25% of these cases are preventable³⁻⁵
- ACOG recently endorsed the California Cardiovascular disease screening algorithm (figure 2) for all pregnant and postpartum women

Objectives

We aim to prospectively determine the screen positive and true positive rates for CVD among women across two populations.

Study Design

Cohort study of a convenience sample of pregnant and postpartum patients from April 2018 to July 2019 at the University of California, Irvine, California and Montefiore Medical Center, Bronx, New York

- Subjects were screened at least once during pregnancy or postpartum
- Patients who were deemed screened positive ('Red Flags', >3-4 moderate risk factors, abnormal physical examination, persistent symptoms) underwent further testing
- The primary outcome was the screen positive rate
- Secondary outcomes were the "true positive" rate and the strength of each of the moderate factors in predicting CVD
- Univariate logistic regression was used to analyze data

Results

- 846 women were screened
- Overall screen positive rate was 8% (5% in California vs. 19% in New York)
- The sites differed as follows:
 - Proportion of African American women (2.7% in California vs 35% in New York, p<0.01)
 - Proportion of substance use (2.7% vs 5.6%, p<0.04)
- The true positive rate was 1.5% at both sites
 - Several of the screen positive patients in New York did not complete follow up studies
- CVD was confirmed in 30% of women with positive screens with complete follow up
- Combinations of moderate factors were the main driver of screen positive rates in both populations
- Table 1 illustrates predictive potential of the moderate risk factors.

Conclusion

- We report CVD screen positive and true positive rates among obstetrical populations at two academic tertiary care centers serving diverse populations.
- We identify the most predictive moderate factors that may help simplify the CVD toolkit algorithm for ease of use.
- Our study is limited by lack of follow up studies in screen positive patients, however suggests that in screen positive patients the rate of true CVD is substantial.
- This is an initial attempt to test the CVD algorithm.
- Data may be used to design a larger multicenter investigation to validate the CVD algorithm.

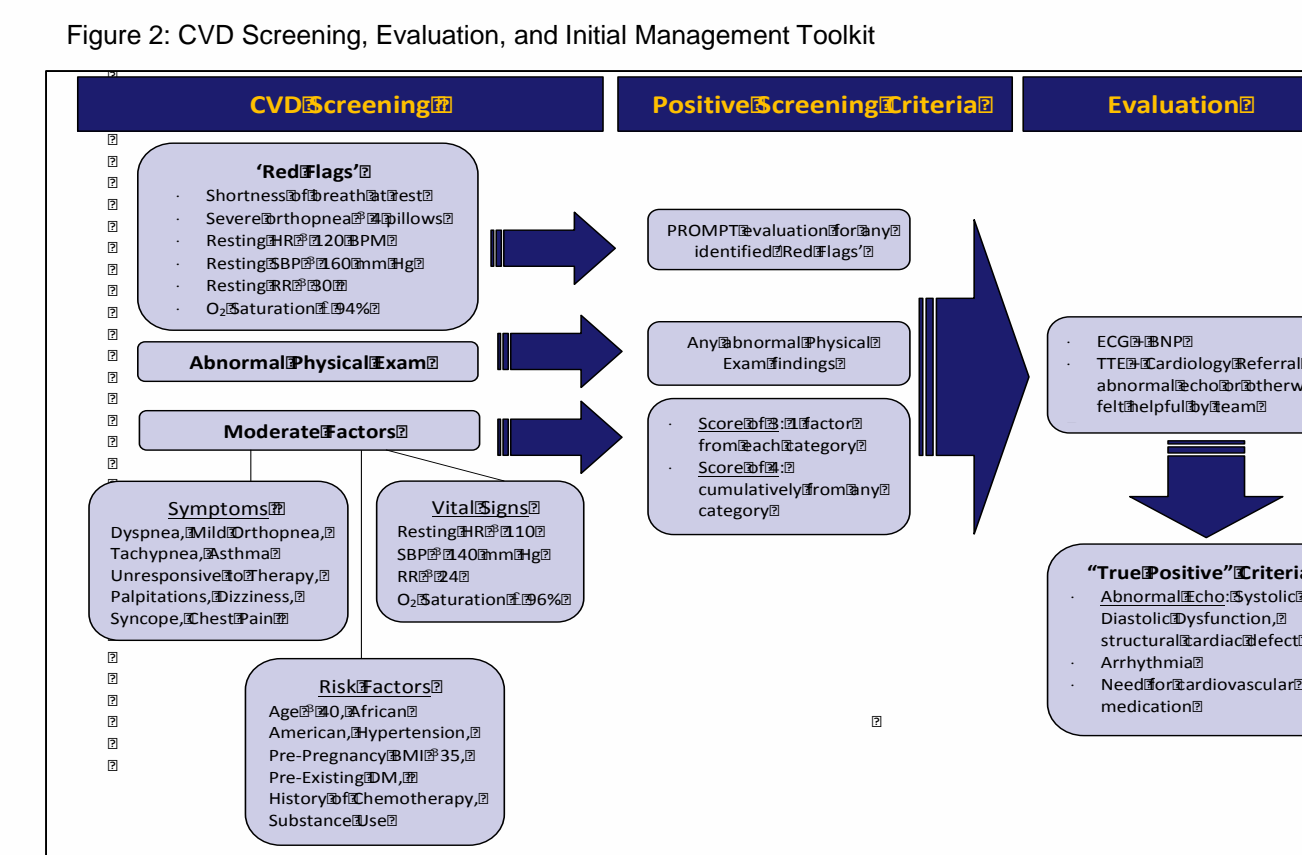
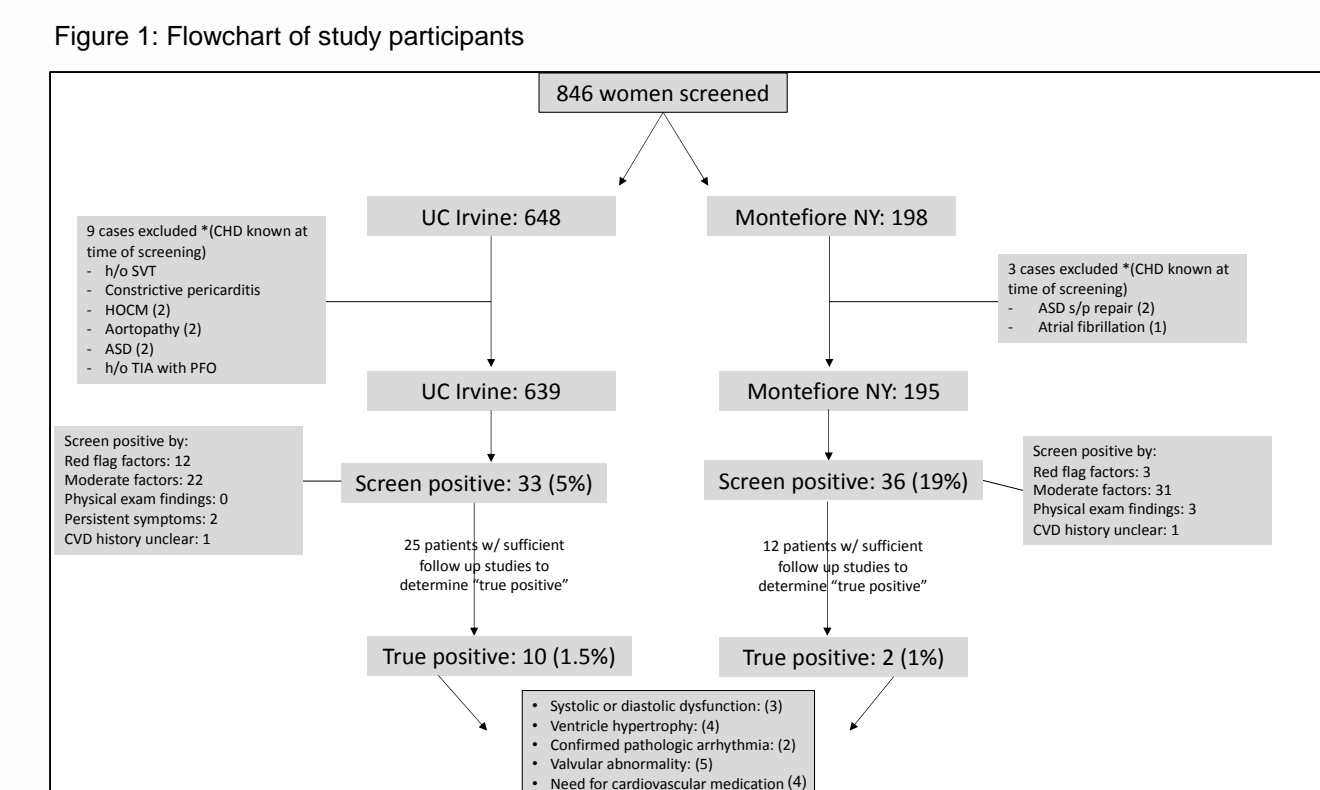


Table 1. Association of moderate risk factors with positive CVD screen

Risk Factors	Positive Screen		
	Odds Ratio (95% C.I.)	p value*	c-statistic
Symptoms			
Dyspnea	50.3 (25.3-99.9)	<0.01	0.84
Palpitations	48.7 (21.6-109.5)	<0.01	0.80
Mild orthopnea	41.9 (16.4-107)	<0.01	0.76
Dizziness/Syncope	25.2 (10.8-59)	<0.01	0.73
Chest pain	24.8 (7.6-80.9)	<0.01	0.70
Asthma unresponsive to therapy	17.2 (16.4-107)	<0.01	0.67
Vital Signs			
Systolic Blood Pressure ≥ 140 mmHg	22.4 (9.6-52.1)	<0.01	0.74
Oxygen Saturation ≤ 96%	14.5 (4.2-50.2)	<0.01	0.67
Resting Heart Rate ≥ 110 BPM	6.0 (2.2-16.7)	<0.01	0.67
Respiratory Rate ≥ 24	NA	NA	NA
Risk Factors			
African American	27.8 (13.1-59.2)	<0.01	0.73
Chronic hypertension	17.0 (8.8-32.7)	<0.01	0.76
Pre-existing diabetes	12.8 (5.9-27.9)	<0.01	0.73
Age ≥ 40	9.8 (4.5-21.7)	<0.01	0.70
Substance Use	7.7 (3.5-17.2)	<0.01	0.67
Pre-Pregnancy Obesity (BMI ≥ 35)	5.9 (3.1-11.2)	<0.01	0.71
History of Chemotherapy	4 (0.2-43.1)	<0.01	0.66

NA = Not Applicable (no RR> 24 was recorded as a moderate factor in screening population)
*p value determined by univariate logistic regression

References

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