

Haematological profile of congenital heart disease patients undergoing surgical correction: A case-control observation study from North India

Shadab Ahamad¹✉, Prachi Kukshal¹, Ajay Kumar¹, Anagha Tulsi², Amita Sharma², Paramvir Singh²

¹Sri Sathya Sai Sanjeevani Research Foundation, Palwal, Haryana, India-121102

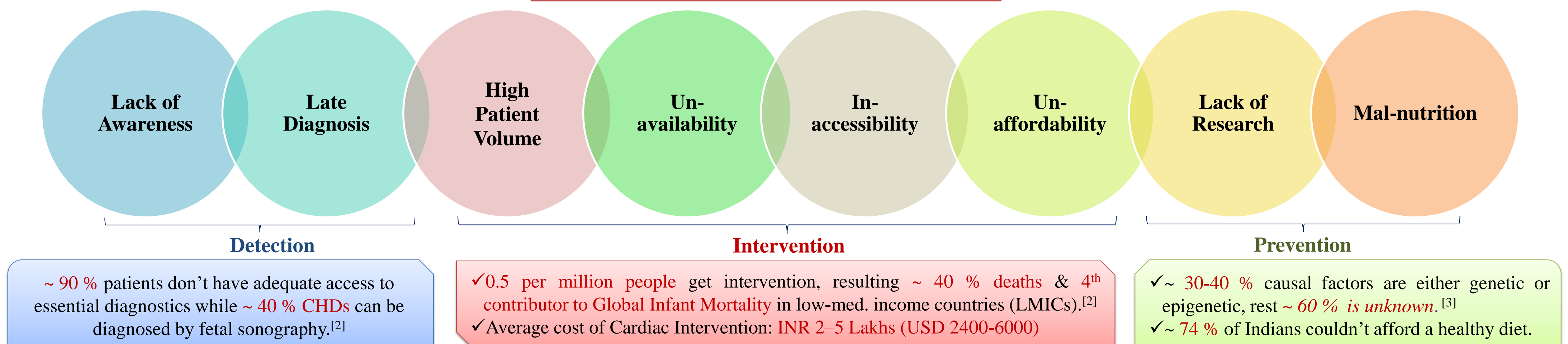
²Sri Sathya Sai Sanjeevani International Centre for Child Heart Care & Research, Palwal, Haryana, India-121102

Email: shadab1997ansari@gmail.com

INTRODUCTION

7.9 million children are born with birth defects worldwide annually, among them ~ 28 % are only congenital heart diseases (CHDs)^[1]

Need-Supply Gap in Pediatric Cardiac Care



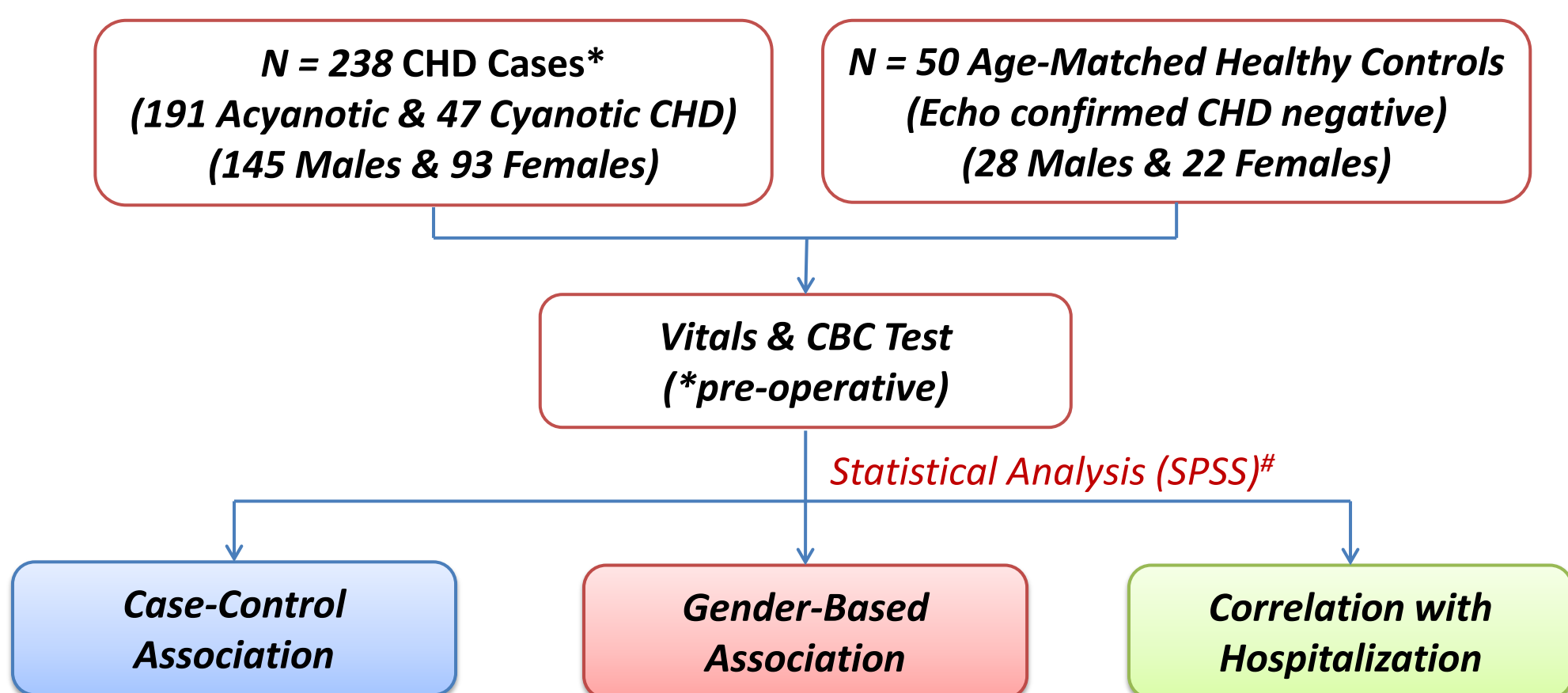
Complete blood count (CBC) is a routine diagnostic test in clinical settings & has been suggested to be predictive of cardiovascular diseases.^[4]

OBJECTIVE

To find correlation of CBC indices with CHD and hospital status of patients

METHODOLOGY

- ✓ Study Design: **Case-control retrospective observational study**
- ✓ IEC Approved with Written Informed Consent
- ✓ **Exclusion:** Patients who had recent *blood/platelet transfusion, iron supplementation, syndromic features, or any chronic disorders*



#Statistical Tests: Student *t*-test, χ^2 test and Multivariate logistic regression

CONCLUSION

- ✓ ~ 20 % CHD patients require treatment within 1st year of life, hence early diagnosis play a vital role in the overall survival rate.
- ✓ The *simplicity, reproducibility, wide availability and cheaper cost* of the CBC test shows its advantage for disease diagnosis in LMICs.
- ✓ *Replication in a larger cohort* can give a more validated conclusion & give an insight into blood biomarkers for prognostic evaluation of the disease.

ACKNOWLEDGEMENT

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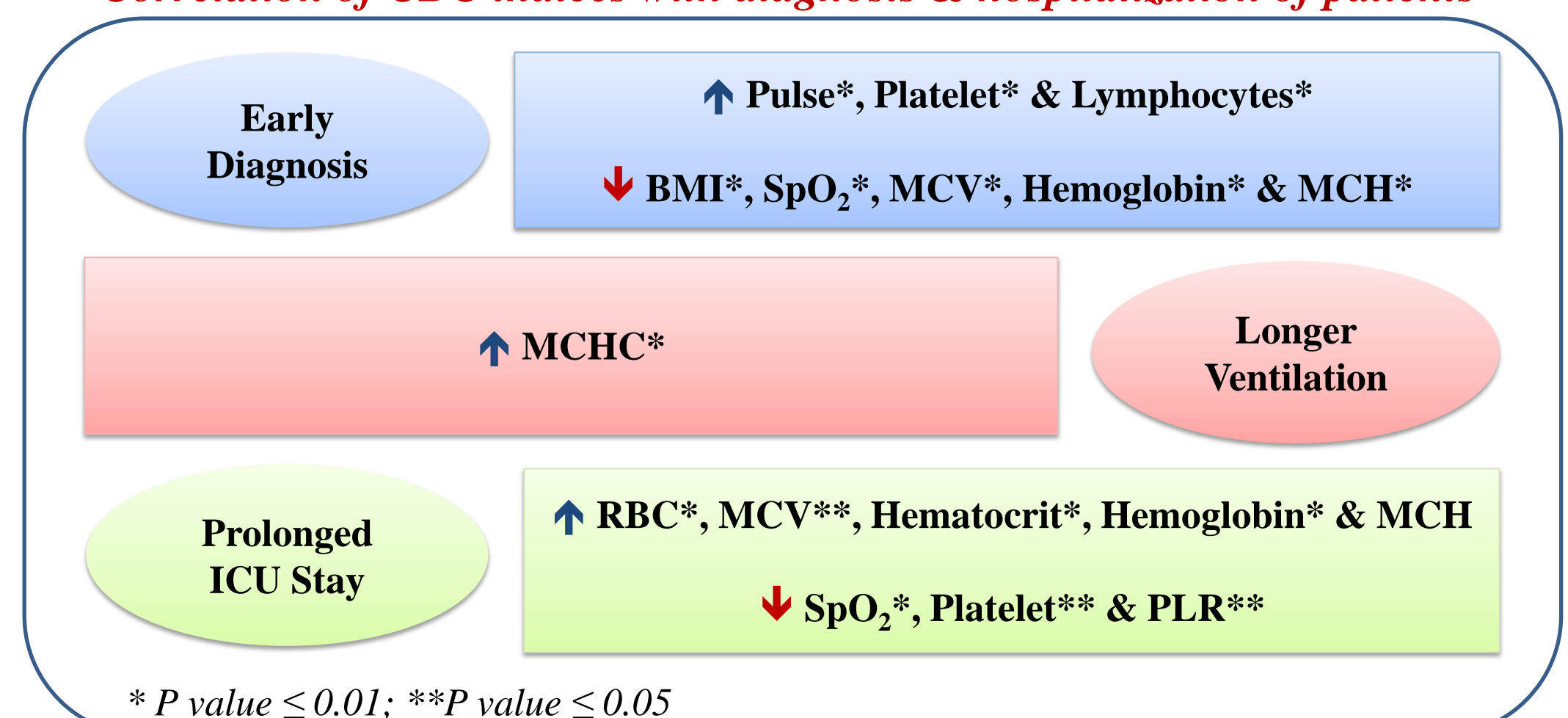
RESULTS & DISCUSSION

Case-control and gender based association of CBC indices with CHD

Variables	Trend (P value w.r.t. controls)			P value within cases	
	All CHD Cases	Acyanotic CHD	Cyanotic CHD	Acyanotic Vs Cyanotic CHD	Males Vs Females
BMI	↓ (0.000)	↓ (0.000)	↓ (0.000)	0.340	0.310
Pulse	↑ (0.000)	↑ (0.000)	↑ (0.000)	0.520	0.620
SpO ₂	↓ (0.000)	↓ (0.001)	↓ (0.000)	0.000	0.008
RBC	↓ (0.920)	↓ (0.000)	↑ (0.000)	0.000	0.003
MCV	↓ (0.000)	↓ (0.000)	↓ (0.004)	0.010	0.120
RDW	↑ (0.420)	↑ (0.740)	↑ (0.040)	0.045	0.310
Hematocrit	↓ (0.001)	↓ (0.000)	↑ (0.000)	0.000	0.040
Platelets	↑ (0.100)	↑ (0.030)	↓ (0.470)	0.002	0.910
Hemoglobin	↓ (0.004)	↓ (0.000)	↑ (0.000)	0.000	0.020
MCH	↓ (0.005)	↓ (0.002)	↓ (0.350)	0.550	0.090
MCHC	↑ (0.010)	↑ (0.001)	↓ (0.480)	0.001	0.510
Lymphocytes	↑ (0.000)	↑ (0.000)	↑ (0.000)	0.860	0.180
PLR	↓ (0.000)	↓ (0.000)	↓ (0.000)	0.002	0.290

BMI: body mass index; SpO₂: oxygen saturation; RBC: red blood cell; MCV: mean corpuscular volume; RDW: red cell distribution width; MCH: mean corpuscular hemoglobin; MCHC: mean corpuscular hemoglobin conc.; PLR: platelet-to-lymphocyte ratio; ↑: increased; ↓: decreased. Significant P values are in bold font.

Correlation of CBC indices with diagnosis & hospitalization of patients



* P value ≤ 0.01; **P value ≤ 0.05



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