Clin. Lab. 2025;71:1-2

ORIGINAL ARTICLE

The Correlation between Serum Heat Shock Protein 90α and the Diagnosis and Classification of Acute Myeloid Leukemia in Children

Wan Y. Qin [1], Miao M. Ma [1], Bin F. Wang [2], Jing Deng [1]

[1] *Department of Pediatrics, People's Hospital of Tongchuan, Tongchuan City, Shaanxi Province, China*
[2] *Department of General Surgery, People's Hospital of Tongchuan, Tongchuan City, Shaanxi Province, China*

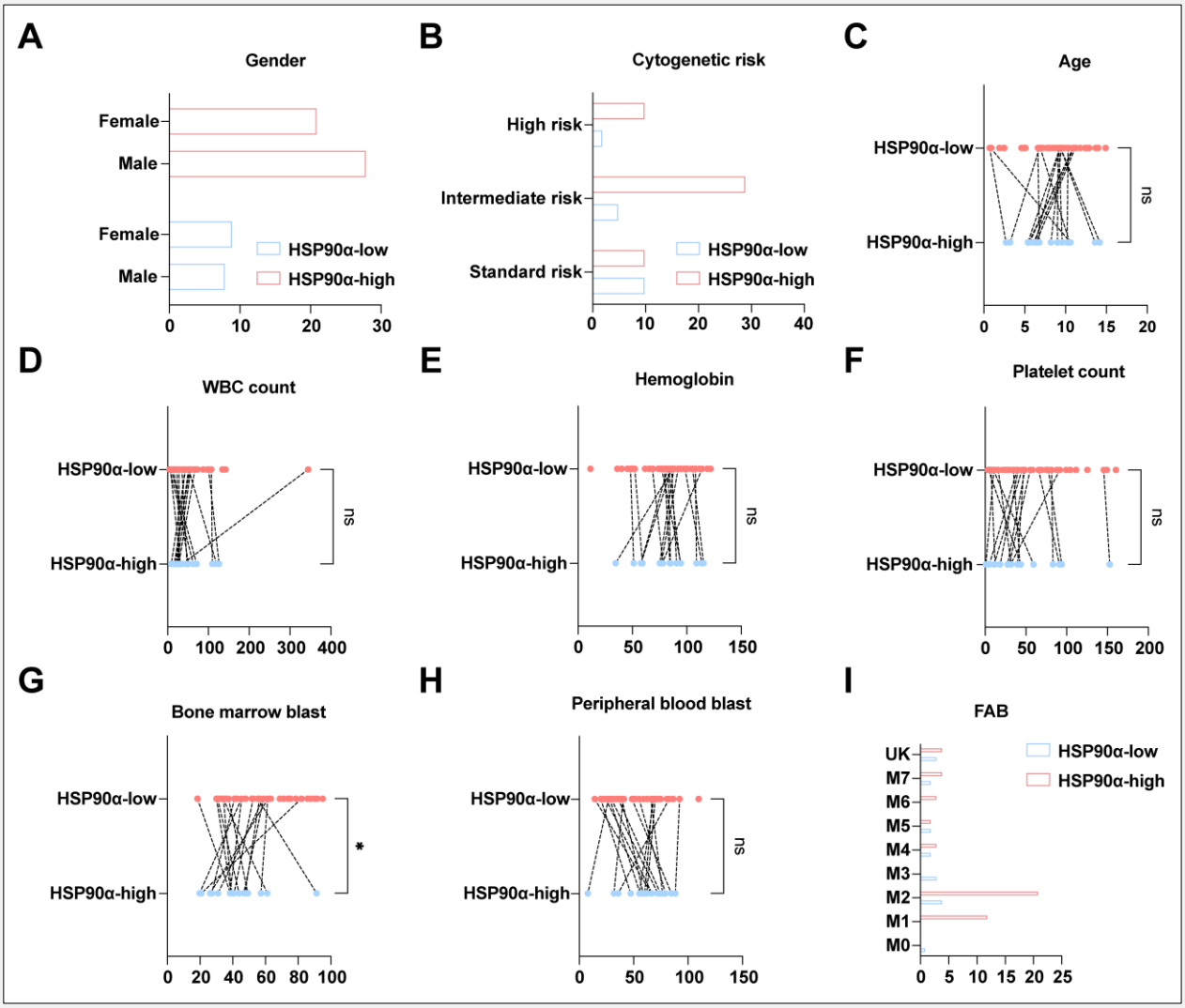
SUMMARY

Background: **The purpose of this study was to investigate the correlation between serum heat shock protein 90α (HSP90α) level and disease diagnosis and classification in children with acute myeloid leukemia (AML).**
Methods: **Sixty-six children with treatment-naive AML and 35 healthy controls were enrolled. Serum HSP90α levels were measured by ELISA. Serum HSP90 levels were analyzed in relation to AML diagnosis, classification, and prognosis prediction among children.**
Results: **Serum HSP90α in children with AML was significantly higher than that in healthy controls. The ROC curve showed that serum HSP90α had excellent diagnostic efficacy for AML, with an AUC of 0.820 (95% CI: 0.737 - 0.902). Serum HSP90α was differentially expressed in different FAB subtypes of AML, which was significantly increased in M1 and M2 subtypes. Compared with the low HSP90α level group, the proportion of BM blast (%) in the high HSP90α level group was significantly increased, and the cytogenetic risk was higher. Serum HSP90α was positively correlated with BM blast (%), but no correlation was observed with the proportion of BM monocytes, lymphocytes, and red blood cells. Children with high HSP90α levels tended to have shorter overall survival than those with low HSP90α levels.**
Conclusions: **HSP90 level in serum may serve as a reliable biomarker for the diagnosis of childhood AML and its subtypes, and abnormal expression may contribute to disease occurrence and progression.**
(Clin. Lab. 2025;71:1-2. DOI: 10.7754/Clin.Lab.2024.241043)

Correspondence:
Jing Deng
Department of Pediatrics
People's Hospital of Tongchuan
No. 12 Jiankang Road, Wangyi District
Tongchuan City
Shaanxi Province, 727000
China
Email: dengjing73245@163.com

Manuscript accepted November 4, 2024

Supplementary Data



Supplementary Figure S1. Relationship between clinical data and serum HSP90α level in children with AML.

A: Male-to-female ratio in the high HSP90α level group and low HSP90α level group; B: cytogenetic risk in the high HSP90α level group and low HSP90α level group; C: age in the high HSP90α level group and low HSP90α level group; D: white blood cell count in the high HSP90α level group and low HSP90α level group; E: hemoglobin in the high HSP90α level group and low HSP90α level group; F: platelets in the high HSP90α level group and low HSP90α level group; G: the proportion of BM blasts in the high HSP90α level group and low HSP90α level group; H: the proportion of PB blasts in the high HSP90α level group and low HSP90α level group; I: FAB classification in the high HSP90α level group and low HSP90α level group. * $p < 0.05$.