

# Clinical presentation, hematologic characteristics and survival outcome of childhood leukemia with musculoskeletal involvement: A 42-year experience from a single tertiary center in Thailand

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## Abstract

**Abstract Background:** Childhood leukemia with musculoskeletal (MSK) involvement mimics various conditions, which consequently leads to diagnostic delays. The clinical implication of MSK involvement in this disease on survival outcomes is inconclusive. This study aimed to compare characteristics and survival outcomes between MSK and non-MSK involvement in childhood leukemia. **Methods:** The medical records of children newly diagnosed with acute leukemia aged under 15 years were retrospectively reviewed. Two-to-one nearest-neighbor propensity score-matching was performed to obtain matched groups with and without MSK involvement. The Kaplan-Meier method and log-rank test were then used to assess the effect of MSK involvement on survival outcomes. **Results:** Of 1042 childhood leukemia cases, 81 (7.8%) children had MSK involvement at initial presentation. MSK involvement was more likely in children with acute lymphoblastic leukemia than acute myeloid leukemia ( $p < 0.05$ ). Hematologic abnormalities were less frequent in the MSK involvement group ( $p < 0.05$ ). The absence of peripheral blast cells was significantly higher in the MSK involvement group (17.3% vs 9.6%,  $p = 0.04$ ). Normal complete blood counts with absence of peripheral blast cells were found 2.5% of the children with MSK involvement. By propensity score-matching for comparable risk groups of children with and without MSK involvement, the 5-year overall survival was not significantly different (48.2% vs 57.4%, respectively,  $p = 0.22$ ), nor was event-free survival (43.3% vs 51.8%, respectively,  $p = 0.31$ ). **Conclusion:** Childhood leukemia with MSK involvement had the characteristics of minimal or absent hematologic abnormalities and peripheral blast counts.

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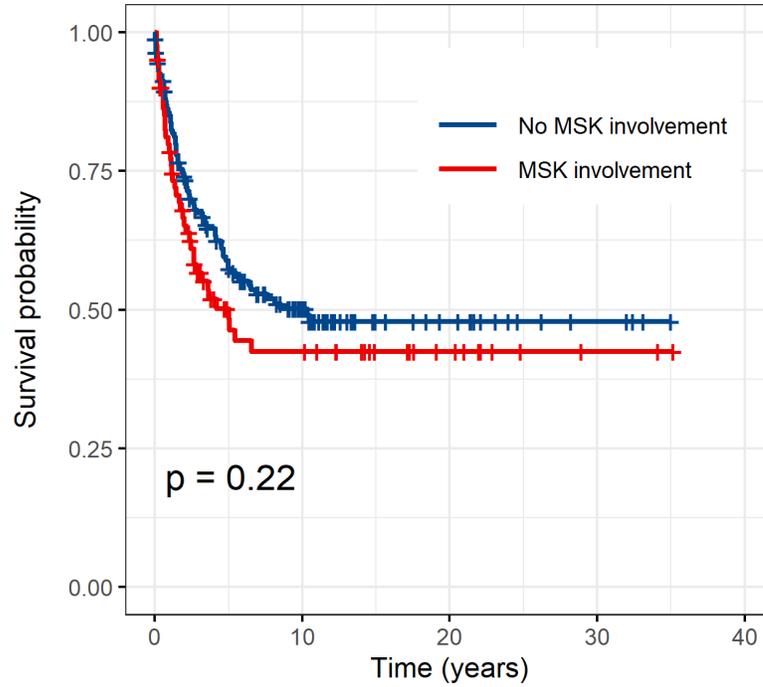
MS.doc available at <https://authorea.com/users/457955/articles/712678-clinical-presentation-hematologic-characteristics-and-survival-outcome-of-childhood-leukemia-with-musculoskeletal-involvement-a-42-year-experience-from-a-single-tertiary-center-in-thailand>

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Table 1.docx available at <https://authorea.com/users/457955/articles/712678-clinical-presentation-hematologic-characteristics-and-survival-outcome-of-childhood-leukemia-with-musculoskeletal-involvement-a-42-year-experience-from-a-single-tertiary-center-in-thailand>

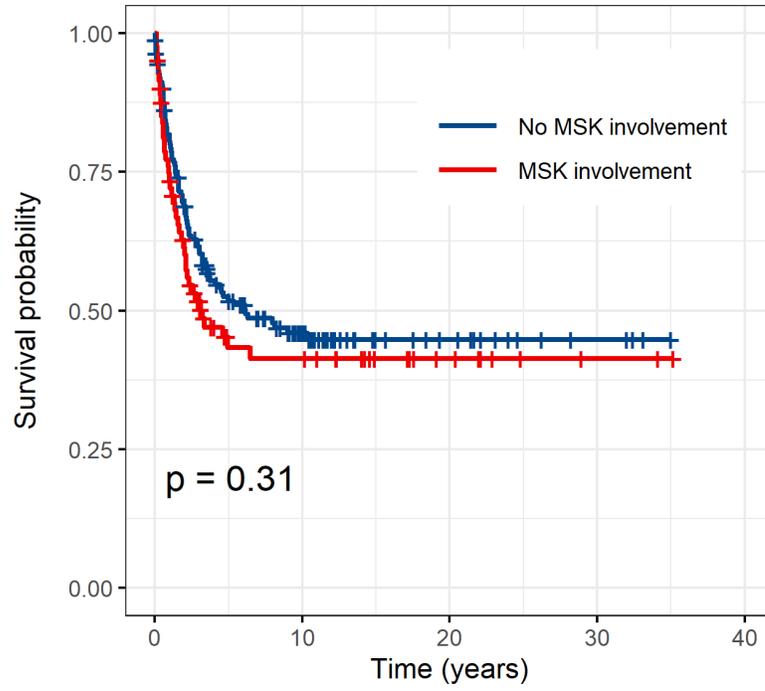
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Number at risk

|                    |     |    |    |   |   |
|--------------------|-----|----|----|---|---|
| No MSK involvement | 162 | 47 | 14 | 4 | 0 |
| MSK involvement    | 81  | 22 | 9  | 2 | 0 |



Number at risk

|                    |     |    |    |   |   |
|--------------------|-----|----|----|---|---|
| No MSK involvement | 162 | 43 | 13 | 4 | 0 |
| MSK involvement    | 81  | 21 | 8  | 2 | 0 |