

General AML

## The clinical impact of microRNA-99a in AML patients undergoing allo-HSCT – a Chinese study

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Recent studies have shown that microRNA-99a (miR-99a) is upregulated on leukemia stem cells and is associated with poor prognosis in acute myeloid leukemia (AML) patients.<sup>1</sup> However, the clinical significance of miR-99a and its predictive value in AML patients undergoing post-allogeneic hematopoietic stem cell transplantation (allo-HSCT) has not been evaluated yet.<sup>2</sup>

Zhiheng Cheng from Huaihe Hospital of Henan University, Kaifeng, China, and colleagues retrospectively analyzed 74 *de novo* AML patients with miR-99a expression who underwent allo-HSCT. Data was collected from [The Cancer Genome Atlas](#) database. Median follow-up time was 29 months. Their findings were published ahead of print in [Bone Marrow Transplantation](#) on 7 March 2018.

Patients were divided into two groups based on their miR-99a expression levels:

- miR-99a<sup>high</sup> group (miR-99a levels were above or equal to median expression level): n = 37, median age = 51 years (range, 22–65)
- miR-99a<sup>low</sup> group (miR-99a levels were lower than median expression level): n = 37, median age = 51 years (range, 18–72)

### Key findings:

- Survival in all patients
  - Median event-free survival (EFS): 12.8 (range, 1.9–106.9) months
  - Median overall survival (OS): 29 (range, 6.6–128.5) months
- Patients in the miR-99a<sup>high</sup> group had significantly shorter EFS ( $P = 0.026$ ) and OS ( $P = 0.010$ ) than the miR-99a<sup>low</sup> group
  - High miR-99a expression associated with inferior EFS: HR = 1.834 (95% CI, 1.056–3.160),  $P = 0.029$
  - High miR-99a expression associated with inferior OS: HR = 2.012 (95% CI, 1.167–3.467),  $P = 0.012$
- High miR-99a expression was an independent risk factor for EFS: HR = 1.909 (95% CI, 1.043–3.494),  $P = 0.036$
- High miR-99a expression was an independent risk factor for OS: HR = 2.179, (95% CI, 1.192–3.982),  $P = 0.011$

In summary, these results showed that high miR-99a expression may be an efficient marker to predict inferior outcomes in AML patients undergoing allo-HSCT. The authors further added that their findings indicated that “allo-HSCT could not overcome the adverse prognostic effect of miR-99a.” Further studies are required to validate these results.

## References

1. Si X, *et al.* Upregulation of miR-99a is associated with poor prognosis of acute myeloid leukemia and promotes myeloid leukemia cell expansion. *Oncotarget*. 2016 Nov 22; 7(47): 78095–78109. DOI: [10.18632/oncotarget.12947](https://doi.org/10.18632/oncotarget.12947).
2. Cheng Z, *et al.* Prognostic significance of microRNA-99a in acute myeloid leukemia patients undergoing allogeneic hematopoietic stem cell transplantation. *Bone Marrow Transplantation*. 2018 March 7. DOI: [10.1038/s41409-018-0146-0](https://doi.org/10.1038/s41409-018-0146-0). [Epub ahead of print]

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