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508.BONE MARROW FAILURE: ACQUIRED

Clinical Analysis of Metagenomic Sequencing of Plasma Microbial Cell-Free DNA for Infected Patients in SAA

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Backgroun d: As a high-risk group of clinical infection, patients with severe aplastic anemia (SAA) have high mortality due to agranulocytosis or immune function impairment. The current conventional detection methods such as blood culturetissue chulture etc. often cannot identify pathogenic bacteria. We evaluate the diagnostic performance of metagenomic next-generation sequencing (mNGS), and explore the application value of mNGS in infected patients in SAA, in order to provide help for precision therapy.
Methods: From Ocb 2020 to Dec 2022 in our center, we enrolled 70 SAA patients with infection and investigated the usefulness of mNGS of plamsa or tissue DNA for identification of infectious pathogens. The consistency of the results of mNGS and the results of routine etiological detection (blood culture(BC), swab/tissue culture) with clinical infection diagnosis and the influence of the results of mNGS on clinical infection treatment were compared.
Results: 70 SAA patients of mNGS were detected, including plasma-mNGS 66 cases and tissue-mNGS 4 cases. Among all patients, 48 cases(68.6%) were positive. In comparison to blood culture, the positive and negative agreement of mNGS were 100% (13/13) and 38.6% (22/57), respectively. In 48 mNGS positive cases, 36 patients (75%) underwent antimicrobials adjustment, resulting in positive impact on 30 patients. Fungi were detected in 29 cases, the detection rate was 41.4% (29/70) by mNGS, otherwise 2.8% (2/70) by BC. Of the 70 patients with SAA, 55 infections eventually impproved (78.6%).
Conclusion: The positive rate of mNGS detection and the consistent rate with clinical diagnosis are higher than that of conventional etiological detection, which provides a faster and more sensitive detection method for infected patients in SAA.
Key words Metagenomic Sequencing ; Plasma Microbial Cell-free DNA; Aplastic anemia; Infection; pathogen diagnosis

Disclosures No relevant conflicts of interest to declare.

Comparison of mNGS and bolld cultures in 70 cases

mNGS (n=70)	blood culture (n=70)	
	positive (n=13)	Negative(n=57)
positive (n=48)	13	35
negative (n=22)	0	22
all (n=70)	13	57

Figure 1

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