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The value of blood cell morphology test in the diagnosis of pediatric diseases

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Abstract: *In order to improve the accuracy of pediatric disease diagnosis, the value of blood cell morphology test in the diagnosis of pediatric diseases is studied. Through the analysis of blood cell morphology test methods, it is proposed that the value of blood cell morphology test can screen the types of pediatric diseases. Blood cells can be divided into red blood cells, platelets and white blood cells according to their morphology In a normal operation state, the appearance of blood cells is round and smooth without significant change. However, once it is found that the morphology of blood cells or their peripheral fibrous tissue changes, it can be considered that there is a certain degree of body disease in the human body. At the same time, the analysis of blood cell content can provide the basis for disease diagnosis. After the classification of blood cell morphological changes, the number or content of deformed blood cells can be screened. According to the proportion of blood cell morphological changes, the final diagnosis decision of pediatric diseases can be provided.*

Keywords: *Blood cell; Morphology; Examination; Pediatric diseases; Diagnosis; Value;*

1. Introduction

Based on the continuous improvement of medical technology in China, the inspection process of blood cell morphology is becoming more and more standard, and the technology of disease diagnosis and treatment through this inspection method is also becoming more and more perfect. Morphological examination of blood cells refers to the analysis of the structure of blood cells and the microstructure of various structures, including the vital signs of blood cells and the composition of intracellular macromolecular structure. In the traditional disease detection work, although the construction of some diagnosis and treatment equipment has been relatively perfect, and the detection equipment and related instruments have been widely used in hospitals, due to the special structure of children's blood cells, the external shape and internal structure of blood cells cannot be accurately observed by conventional detection methods [1]. But the blood cell morphology test method, can be directly through the extraction of hematopoietic stem cells, under the microscope to observe the appearance and morphology of blood cells, several types of typical pediatric disease screening. In particular, some diseases (including children's habitual anemia, fever, etc.) can not be screened out by conventional detection methods. The use of blood cell morphology test can accurately provide the final diagnosis decision for pediatric diseases, improve the accuracy of disease diagnosis results, and solve the problems that cannot be solved by traditional disease diagnosis methods [2]. In order to further improve the application value of blood cell morphology test in the medical industry, this paper will measure the value of this test method, and deeply analyze the contribution of blood cell morphology test to pediatric medical diagnosis, so as to provide data support for the development of China's medical industry. The specific research is as follows.

2. Blood cell morphology test method

At present, the research of blood cell test in our country has achieved initial results. In the process of test implementation, the morphological test of blood cells refers to the use of routine blood test to smear the peripheral blood cells. On this basis, the use of cell microscope and analyzer is integrated to evaluate the relevant parameters of cells. At the same time, manual operation was used to make blood cell smear, and the blood cells were preliminarily artificially sampled and classified according to conventional chromosomes [3]. Under normal circumstances, the use of modern medical detection equipment can identify the mobile blood cells and different chromosomes in blood cells, and manually

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review and divide them by analyzing the identified cell abnormalities. In addition to the proposed manual method, we can also use professional equipment to carry out nuclear classification. The method of first classifying and then testing content can significantly improve the efficiency of blood cell morphological testing.

For the diagnosis of pediatric blood diseases, it is necessary to test not only the morphology of blood cells, but also the morphology of bone marrow cells in blood cells. In the cell population, most of the peripheral cell tissue usually comes from the human bone marrow, and if the components of the pathological cell tissue cannot be correctly presented in the external blood, it is necessary to continuously extract the bone marrow fluid during the blood drawing process, and master the actual shape of the blood cells in the human body through in-depth judgment or evaluation of the blood cells in the bone marrow, so as to realize the accurate diagnosis of the disease Accurate judgment. In this process, considering that there is no significant difference between the morphology of bone marrow blood cells and conventional blood cells, the membrane should be thinned as far as possible in obtaining cell samples, and the risk of fibrosis around blood cells should be considered to diagnose the combined cell tissue [4]. This diagnosis method is called combined blood cell morphology test in the current market, and the final results of this method can be used for pediatric medical diagnosis decision-making.

3. The value of blood cell morphology test in the diagnosis of pediatric diseases

3.1. Examination of blood cell appearance can screen the types of pediatric diseases

In the study of blood cells, we found that blood cells can be divided into red blood cells, platelets, white blood cells and so on according to their morphology. When the human body's functions are in a normal state, the appearance of blood cells is round and smooth, and there is no significant change. However, once it is found that the morphology of blood cells or their peripheral fibrous tissue changes, it can be considered that there is a certain degree of body disease in the human body. The production of human peripheral blood cells mainly depends on the original form of blood cells, or on its pathological form. Under the influence of different diseases, the morphology of blood cells is also different. Through the examination of blood cell morphology, it can provide assistance for pediatric medical diagnosis, and has significant application value in the current medical industry.

For example, after obtaining pediatric blood cell samples, abnormal blood cell morphology was found. At this time, the blood sample inspection department needs to continuously divide the blood cell samples, and then classify the blood cell deformation tissue samples with type change. If the red blood cells in the blood cells are found to be abnormal in morphology, the main manifestations of patients in pediatric diagnosis are blood diseases, including rare blood aggregation diseases and high pigment blood diseases [5]. If the red blood cells in the blood cells are found to be abnormal in morphology, the main manifestation of patients in pediatric diagnosis is lymphocyte problems, and in severe cases, there may even be vacuoles in the blood. If the platelet in blood cells is found to have abnormal morphology, the main manifestation of patients in pediatric diagnosis is hematopoietic diseases.

Based on the above, through this test method, doctors can make a preliminary diagnosis of the condition of pediatric patients. After mastering the basic disease of patients, they can continuously screen the number of blood cells that produce morphological changes, so as to locate the concurrent points and causes of the disease.

3.2. Analysis of blood cell content can provide basis for disease diagnosis

In addition to the above value, in the pediatric medical diagnosis industry, it is also found that the targeted examination of blood cell morphology can be used to test the hidden diseases of children. After the classification of abnormal morphological changes of blood cells, the number or content of deformed blood cells should be screened, which is helpful to the final diagnosis decision of children. Based on the working experience of medical units, the types of pediatric diseases diagnosed with different types of blood cell content were classified. The details are shown in Table 1.

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Table 1: Analysis of blood cell content in diagnosis of pediatric medical diseases

Types of diseases	type	n(/%)	features
Respiratory diseases	Upper respiratory diseases	13.0%~25.0	The number of deformed white blood cells increased significantly
	Bronchial diseases	15.0%~17.0%	The nuclei showed a tendency to move to the left, and the leukocytes showed significant toxicity
	Bronchiolitis like diseases	<21.0%	
Digestive tract diseases	A disease caused by diarrhea	17.0%~19.0%	The morphology of red blood cells was abnormal and the whole lymphoid tissue increased
	Complications from gastritis	>4.0%	
Infectious diseases	Hepatitis (/ infectious)	>2.0%	Granulocyte ratio increased
	Viral diseases (/ infectious)	14.0%~15.0%	Abnormal lymphocytes increased significantly
	Bacterial diseases (/ infectious)	>4.0%	The leukocyte toxicity was different in different stages
Blood diseases	Anemia (/ caused by Fe deficiency)	>16.0%	The content of hemoglobin was abnormal
	Thalassemia	6.0%~9.0%	Abnormal histological structure of red blood cells
Other diseases	other	The content of many elements in blood cells decreased significantly	

According to the above contents in Table 1 (n in Table 1 is the proportion of morphological changes of blood cells observed under the microscope), the final correct diagnosis of pediatric diseases can be achieved by analyzing the parameters of morphological changes of blood cells in different periods or different states.

4. Conclusions

This paper analyzes the value of blood cell morphology test in the diagnosis of pediatric diseases from the aspects of blood cell morphology test can screen the types of pediatric diseases and blood cell content analysis can provide the basis for disease diagnosis, hoping to provide support for the improvement of the level of pediatric medical diagnosis in China through the analysis of this paper.

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