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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Internal medicine transfusion
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was drafted. Shanghai Sixth People's Hospital, Beijing Hospital, the First Affiliated Hospital of China Medical University, Peking Union Medical College Hospital, Xiangya Hospital of Central South University, Tongji Hospital affiliated to Tongji Medical College of Huazhong University of Science and Technology, West China Hospital of Sichuan University, Blood Center of Fujian Province, Haishi Blood Center, Beijing Tongren Hospital affiliated to Capital Medical University, Sino-Japanese Friendship Hospital of Jilin University, First Affiliated Hospital of Zhengzhou University, New People's Hospital of Xinjiang Uygur Autonomous Region, Second Affiliated Hospital of Kunming Medical University, First Hospital of Lanzhou University.

1 Scope

This standard specifies red blood cell components, platelet components, apheresis, fresh frozen plasma/virus inactivated fresh frozen plasma, ice Method of using frozen plasma/virus to inactivate frozen plasma and cryoprecipitate clotting factor.

This standard is applicable to the clinical blood transfusion treatment and evaluation of medical system diseases at various levels of medical institutions across the country.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest edition (including all amendments) applies to this document.

GB 18469 Whole blood and component blood quality requirements WS/T 203 common terminology for transfusion medicine

3 Terms and definitions

The terms and definitions defined in GB 18469 and WS/T 203 apply to this document.

4.1 Red blood cell components

Therapeutic infusion for acute and chronic anemia caused by erythropoiesis, excessive destruction or loss, and pathological red blood cell components Change and so on. Usually, 1 unit of red blood cell component per infusion can increase hemoglobin 5g/L~10g/L, and/or hematocrit 0.015~0.030.

a) General rules.

- 1) Hemoglobin >100g/L and/or hematocrit > 0.30, can not be infused;
- 2) Hemoglobin 60g/L~100g/L and/or hematocrit 0.18~0.30, according to the patient's tissue hypoxia and oxygen consumption, heart Comprehensive assessment of lung compensatory function and other conditions to consider whether infusion is required;
- 3) Hemoglobin < 60g/L and/or hematocrit < 0.18, can be infused.

b) Special circumstances and instructions.

- 1) Hemoglobin < 40g/L in patients with autoimmune hemolytic anemia, according to tissue hypoxia and oxygen consumption, cardiopulmonary compensatory function a comprehensive assessment of the situation to consider whether an infusion is required;
- 2) Hemoglobin < 130g/L in patients with globin synthesis anemia, can be infused;
- 3) Patients with cardiopulmonary disorders such as myocardial infarction, pulmonary heart disease, congenital heart disease, severe infection, and implementation of cancer radiotherapy and chemotherapy, Infusion indications may be appropriately relaxed;
- 4) History of allergic reactions to blood transfusion, IgA deficiency, paroxysmal nocturnal hemoglobinuria, advanced liver and kidney disease and hyperkalemia Patients should be infused with washed red blood cells; patients with non-hemolytic fever after transfusion, repeated blood transfusions, etc. should be infused Leukocyte suspension of red blood

cells; congenital or acquired (after tumor radiotherapy and chemotherapy) low immunity and hematopoietic stem cell transplantation Patients should be infused with irradiated red blood cells; patients with negative RhD antigen and other rare blood types can be infused with frozen thawed to remove glycerol red Cell

5) After the red blood cell component is infused, it is advisable to observe the improvement of anemia in time, detect the hemoglobin value, etc., and adjust the infusion dose in real time.

4.2 Platelet composition

A therapeutic infusion for hemorrhage caused by reduced platelet count and/or dysfunction or prophylactic loss with a potential bleeding tendency Note. Usually, a platelet count of $10 \times 10^9/L \sim 30 \times 10^9/L$ can be increased by injecting 1 therapeutic amount of apheresis platelets or 10 units of concentrated platelets per infusion.

a) General rules.

1) platelet count $> 50 \times 10^9/L$, can not be infused; if there is abnormal platelet function accompanied by significant bleeding, can be infused;

2) Platelet count $10 \times 10^9/L \sim 50 \times 10^9/L$, accompanied by obvious bleeding, should be infused;

3) The platelet count $< 10 \times 10^9/L$ should be infused immediately.

b) Special circumstances and instructions.

1) There are other hemostatic abnormalities (such as hereditary or acquired coagulopathy) or high risk factors for bleeding (eg fever, Septicemia, anemia, tumor after radiotherapy and chemotherapy, etc.), when the platelet count $< 30 \times 10^9/L$, should be infused;

2) A large amount of blood transfusion and/or a large amount of infusion of crystalloid or artificial colloidal fluid after acute hemorrhage leads to dilute thrombocytopenia;

Significant hemorrhage and acute thrombocytopenia caused by extracorporeal circulation, membrane lung, etc., platelet count $< 50 \times 10^9/L$ and /or when the platelet function is abnormal, it should be infused;

3) The thromboelastogram (TEG) shows a decrease in the MA value with significant bleeding and should be infused;

4) Patients with medical system diseases should achieve the following safety reference values before performing various invasive operation. Otherwise, they should be infused.

Includes. platelet count $> 20 \times 10^9/L$ for mildly invasive procedures; indwelling catheter, meningotomy (lumbar wear), chest Puncture, liver biopsy, transbronchial biopsy, platelet count $> 50 \times 10^9/L$; adult acute leukemia patients with small blood Plate count $> 20 \times 10^9/L$,

most can withstand waist wear without serious bleeding complications; bone marrow puncture and biopsy before operation no need to infuse platelets;

5) Patients who need repeated blood transfusion should choose to infusion of leukocyte apheresis; platelet transfusion is ineffective due to immune factors Patients should be infused with HLA/HPA combined with apheresis; congenital or acquired (eg, after tumor chemotherapy) Patients who can be seriously depressed should be infused with irradiation or leukocyte apheresis; patients with hematopoietic stem cell transplantation should be infused with HLA.

Cooperating type irradiated apheresis platelets;

6) In the absence of HLA/HPA complex apheresis due to immune factors that cause platelet transfusion to be ineffective and may be associated with life-threatening bleeding in the case of platelets, a one-time infusion of platelet component doses without HLA/HPA matching may be appropriately relaxed;

7) Thrombotic thrombocytopenic purpura and heparin-induced thrombocytopenia should be used with caution;

8) After the platelet transfusion, it is advisable to observe the improvement of the patient's bleeding in time, and increase the correction index (CCI) by the platelet count and /or the platelet recovery rate (PPR) and/or thromboelastogram (TEG) test, etc., adjust the infusion dose in real time.

4.3 Single granulocyte

It is indicated for therapeutic infusion of granulocytopenia or abnormal granulocyte function. Usually the infusion dose is 1~3 units per time.

a) General rules.

1) Bone marrow granulocyte hyperplasia is extremely reduced by granulocyte colony-stimulating factor (G-CSF) or granulocyte-macrophage colony-stimulating factor (GM-CSF) for more than 5 days, neutrophils continue to be $\leq 0.5 \times 10^9/L$, accompanied by severe bacterial or fungal infections.

Infusion

2) Infusion can be performed when neutrophil function is abnormally abnormal and accompanied by severe bacterial or fungal infection.

b) Special circumstances and instructions.

1) In order to reduce the occurrence of ineffective infusion, as well as congenital or acquired (such as. after tumor radiotherapy and chemotherapy), the immune function is seriously low, Hematopoietic stem cell transplantation and other patients should choose HLA-matched apheresis;