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Review on Haematologists on Hematological Disorders

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Review Article

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ABSTRACT

Study of blood and its components is called haematology. The branch of science that involves study and treatment of blood. The malfuntion in production of blood and its components is called as Hematological disorders. The diseases include hemophilia, blood clots, other bleeding disorders and blood cancers such as lymphoma, leukemia and myeloma. The laboratory work that goes into the study of blood is frequently performed by medical technicians or medical lab scientist. Hematologists work as hematologist or oncologists providing medical treatment for all cancers. Pathologists who are specialised in blood diagnosis are called hematologists. Hematologists and hematopathologists do combined work to formulate a diagnosis resulting the most appropriate therapy to the patient. Hematology is very near to internal medicine and differs from medical oncology.

INTRODUCTION

Hematology is a branch of science that deals with the study of blood and its blood-forming organs, and blood diseases. Hematology is practised by clinicians who deal with the blood diagnosis its treatment and overall blood disorders ranging from anemia to blood cancer. The diseases which are mostly treated by haematologists include: Iron deficiency anaemia and types of anemia e.g. sickle cell anemia or trauma-related anemia, polycythemia, myelofibrosis, leukemia, platelet and bleeding disorders such as hemophilia, idiopathic thrombocytopenic purpura and Von Willebrand disease, The myelodysplastic syndromes, hemoglobinopathies such as thalassemia and sickle cell disease, multiple myeloma, malignant lymphomas, blood transfusion, bone marrow stem cell transplantation [1-10].

The main medical blood treatment methods are:

1. Using blood products
2. Intravenous administration
3. Bloodletting

TRANSFUSION OF BLOOD AND BLOOD PRODUCTS

Blood transfusion is the commonly used treatment of hemorrhage and to improve transport of oxygen to tissues. Transfusion of red blood cells is based on the patient's clinical and health condition. Indications for transfusion include symptomatic anemia, lack of sickle cells and acute loss of blood i.e more than 30% of blood volume. Anticoagulation effect can be reversed with the help of frozen plasma infusion. Platelet function defects can be stopped by Platelet transfusion which helps in the prevention of hemorrhage in thrombocytopenia patients. Cryoprecipitate is used in hypofibrinogenemia cases and is most often seen in setting the massive hemorrhage or consumptive coagulopathy [20-40]. Transfusion-related infections are less commonly seen with noninfectious complications. Noninfectious complications of transfusions are divided into noninfectious and serious hazards of transfusion. Acute complications are seen in minutes to 24 hours of transfusion and delayed complications may prolong to days, months or even years together. Blood transfusion is a lifesaving procedure and has its own merits and demerits like infectious and noninfectious complications. Clinical trials investigation confirmed that transfer of blood at lower hemoglobin levels is beneficial. Packed red blood cells (RBCs) are prepared from whole blood by removing approximately 250 ml of plasma. One packed unit RBCs should increase levels of hemoglobin by 1 g/dl (10 g/L) and hematocrit by 3%. Packed RBC units are filtered to reduce leukocytes which limits febrile nonhemolytic transfusion reactions (FNHTRs) and are considered safe [41-60].

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INTRAVENOUS THERAPY

Intravenous mean infusion of liquid substances directly into the vein. Therapies administered intravenously are called as intravenous therapy and are often done with the use of drugs. Intravenous infusions are commonly referred as drips because many administration systems employ a drip chamber that prevents air from disturbing the blood stream allowing the smooth blood flow. This therapy is used to correct the electrolyte imbalances, blood transfusion or fluid replacement e.g. dehydration. It can also be used in chemotherapy. If compared with other routes, the intravenous route is the fastest way to inject fluids and medications throughout the body [61-70]. The bioavailability is 100% by using IV treatment. Some commonly found adverse effects of Intravenous therapy are pain, infection, phlebitis, infiltration/extravasation, fluid overload, hypothermia, electrolyte imbalance, embolism, glucose [71-85].

BLOODLETTING

It is an extraction of blood from a patient to cure illness. Bloodletting was based on an ancient system of science in which blood and other fluids that had to remain in proper balance to maintain health. The most commonly used medical practice done by surgeons until the late 19th century. The practice has been stopped by modern medicine because of some specific conditions. Bloodletting has a beneficial effect in temporarily decreasing the blood pressure in the absence of other hypertension treatments. Hypertension is an asymptomatic and un-diagnosable condition and is unintentional. The use of bloodletting was harmful to patients in most of the cases. Phlebotomy means extraction of blood for laboratory analysis or blood transfusion. The drawing of blood to analyse specific cases like hemochromatosis, polycythemia vera etc. comes under Therapeutic phlebotomy. Presently the medical practice of bloodletting is considered to be a pseudoscience [86-100].

CONCLUSION

Scientists have attained tremendous progress in treating blood disorders by using different sources like myelofibrosis, Multiple myeloma, myelodysplastic syndromes, and blood transfusion etc. They have invented many blood treatment methods and are succesfully applied in saving human life. All of these are successful blood treatment methods. If one or more parts of the blood is affected and prevent to perform its function leads to Blood disorders. Blood disorders can be acute, chronic or inherited. Other causes include medicinal side effects and lack of certain diet nutrients.

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