HEMOTHERAPY IN CHRONIC ANEMIAS

ESSAY

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By

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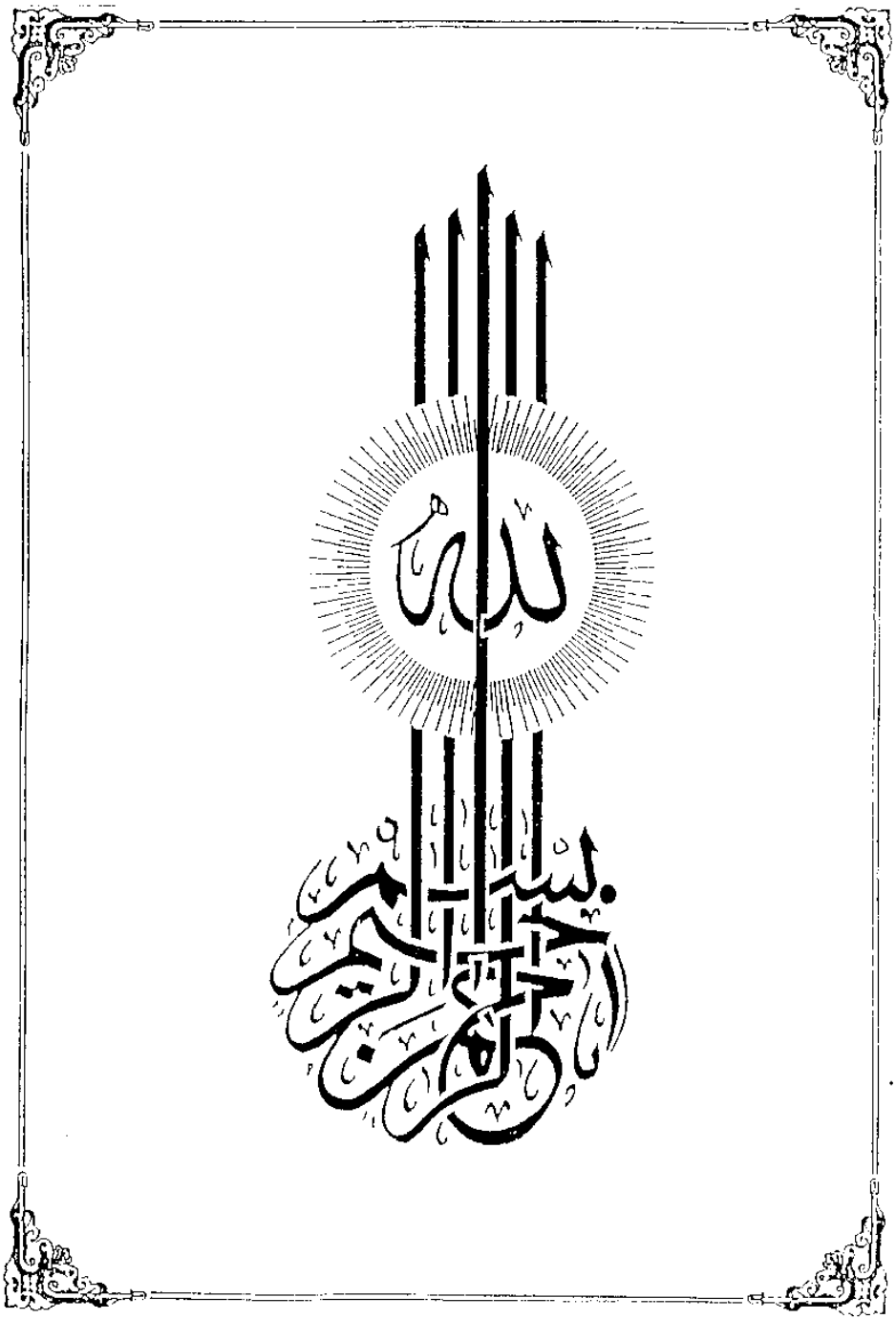

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INTRODUCTION

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Anaemia is a reduction in the concentration of red cells and hemoglobin in the blood. Broader definitions have been advocated that take into account the totalvolume of red cells (red cell mass) and the total volume of whole blood (blood volume), as well as their ratio (body hematocrit) have been advocated.

Operationally however, anemia is diagnosed on the basis of red cell concentration. The range of normal values by which the blood red cells and hemoglobin concentration is [illegible] by lifestyles, residential altitude, age and sex. The principle of [illegible] the definition of anemia [illegible] of regional reference.

populations is counterproductive, for this serves only to conceal locally prevalent aberrations (Jamol, 1987).

In patients with very sever chronic anemia transfusion may easily overload the circulation and precipitates cardiac failure. Whenever it is probable that anemia will respond to some other form of treatment, transfusion should be avoided. The classical example is the patient with untreated pernicious anemia. It is now generally agreed that such a patient should not be transfused unless a) there is bleeding associated with a very low platelet count or b) the patient has thrombosis or some other [illegible] which may [illegible] with the response to vitamin B12 (Mollison, 1980).

In certain conditions, such as leukemia and aplastic anemia, there may be continuous sever under production of red cells so that a regime of regular transfusion has to be instituted.

In some hemolytic anemias the suppression of red cell production by a transfusion may be beneficial. Dacie (1984) showed that if a sufficient volume of normal red cells was transfused to a patient with paroxysmal nocturnal hemoglobinuria, the number of the patient's own cells in the circulation fell to a low level and hemoglobinuria temporarily ceased.

Similarly, in children with severe thalassemia or sickle cell anemia regular transfusions depress marrow activity and permit normal bone growth. It responds to

transfusion must be watched carefully in case the patient develops alloantibodies and becomes difficult to transfuse at a time when erythropoiesis is suppressed.

When red cell production is only moderately depressed, as in many cases of chronic renal failure, it is usually better to allow a patient to find his hemoglobin level provided that this is not lower than about 6 gm/dl rather than to try to bring the level to some arbitrary value such as 11 gm/dl (Winston, 1988). In fact, uremia patient who are to undergo renal transplantation can donate blood approximately every month without being anemic (Merrill et al., 1973).

Patients who have developed severe anemia as a result of recurrent hemorrhage have to be transfused, unless it is reasonably certain that there will be no further hemorrhage. It is most undesirable to allow such patients to become severely anemic and for this reason patients who have recently had hematemesis and whose hemoglobin is as low as 7-8 gm/dl should be transfused. If the hemoglobin level falls to 4.5 gm/dl or thereabouts, the patient may pass into the "hyperkinetic" phase, and it may then be extremely hazardous to give a transfusion (Mollison, 1960).

When anemia has developed over a long period of time, compensatory mechanisms (e.g. increased cardiac output and right shift of the oxyhemoglobin dissociation curve) become effective. Despite very low hemoglobin

levels, the patient may be asymptomatic and may not require transfusion. The presence of symptoms, not of abnormal laboratory findings, should dictate decisions.

For patients with chronic **anemia**, attempts should be made to make a diagnosis and treat the anemia appropriately. Transfusion should be used only as the last resort, since transfused blood may suppress erythropoiesis (Howarth and Sharpey-Schafer, 1947).

The clinical conditions in which transfusion of blood or its components is required can be grouped in one of the following [illegible] and maintain circulating blood volume e.g. in patients with hemorrhagic and traumatic shock: transfusion of cellular and plasma components can be started without delay and

it necessary "bridge" the period required to collect fresh whole blood, or the need to supply some specific cellular or protein components which is deficient in the patient, c) special situations such as exchange transfusion to remove toxic materials from the blood, and extracorporeal circuits used for open heart surgery. The safe and effective application and full implements requires first of all knowledge of the pathophysiology of the condition being treated. In addition information about the storage stability and in vivo survival of blood components, the [illegible] understanding of the [illegible] and benefits of the [illegible]

CHAPTER I

CLASSIFICATION OF ANEMIAS

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Anemia is a disorder where the patient suffers from tissue hypoxia, as a consequence of a low oxygen-carrying capacity of the blood.

On the basis of determination of the red cell mass, anemia can be classified as: 1- relative and 2- absolute (Williams, 1990). Relative anemia is characterized by a normal total red cell mass. Such conditions is usually not thought of as a true blood disorder but rather as disturbance in the plasma volume. However, a [illegible] anemia is of