

Chapter 51

Nutraceutical and Functional Foods in Treatment of Anemia

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ABSTRACT

WHO database mentions that the global anemia-affected population is 24.8%. To name a few conditions in which compromisation of the red blood corpuscles and hemoglobin occurs are iron deficiency anemia, gestational anemia, anemia due to malaria and parasitism, hemolytic anemia, sickle cell anemia. The line of treatment in case of anemia involves administration of iron supplements, plasmapheresis, steroids, blood transfusion at regular intervals, and lifestyle changes. The systematic approach applied for the pharmaceutical molecules should be equally inculcated in the case of nutraceuticals. The traditional system when woven carefully with the novel drug delivery system will give effective nutrient delivery. Functional foods have inherent nutritional value. Nutraceuticals and functional food cannot cure the anemic condition, but help the patient lead life almost like a normal individual.

INTRODUCTION

Overview of Anemia

Anemia is a well-known public health problem majorly in gestational women and young children. The factors can be either being decreased red blood cell production or increased red blood cell destruction. The Figure 1 gives frame-diagram of anemia for understanding causes of anemia. A daily requirement of 20 to 30 mg of iron is required by the body for erythropoiesis and other biological processes. A lack of this supply of this iron or its absorption due to varied causes leads to anemia (Greenburg, 1996). WHO 2011 gives us a look at the worldwide prevalence of anemia; same is given in Table. 1. Figure 2 gives us an insight about the prevalence of the anemia on the global level in infants and children.

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Figure 1. Frame-diagram of anemia for understanding causes of anemia

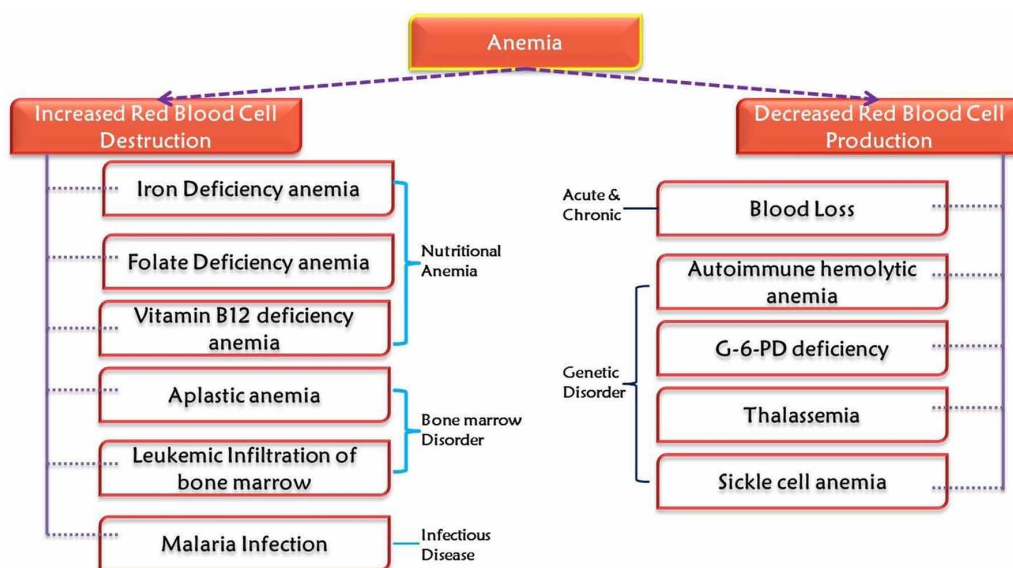


Table 1. Global and WHO regional mean blood hemoglobin concentration and prevalence of anemia by population group for 2011 (WHO, 2011, used with permission)

WHO Region	Mean (95% CI) Blood Hemoglobin Concentration (g/l)	Percentage (95% CI) of Population With Anemia ^a	Number (95% CI) of People With Anemia (Millions) ^b	Percentage (95% CI) of Population With Severe Anemia ^c	Number (95% CI) of People With Severe Anemia (Millions) ^c
Children Aged 6-59 Months					
African Region	104 (103 to 105)	62.3 (59.6 to 64.8)	84.5 (81 to 87.9)	3.6 (2.9 to 4.4)	4.9 (4.0 to 6.0)
Region of the Americas	119 (117 to 121)	22.3 (17.7 to 27.9)	17.1 (13.5 to 21.3)	0.2 (0.1 to 0.5)	0.18 (0.1 to 0.4)
South-east Asia Region	107 (104 to 112)	53.8 (39.9 to 63.9)	96.7 (71.7 to 115.0)	1.5 (0.4 to 3.7)	2.7 (0.8 to 6.6)
European Region	119 (115 to 122)	22.9 (14.9 to 32.8)	12.7 (8.2 to 18.1)	0.3 (0.1 to 0.8)	0.2 (0.0 to 0.5)
Eastern Mediterranean Region	109 (106 to 112)	48.6 (40.4 to 57.0)	35.8 (29.7 to 41.9)	2.0 (1.0 to 3.1)	1.5 (0.7 to 2.3)
Western Pacific Region	120 (114 to 125)	21.9 (12 to 36.9)	25.7 (14.2 to 43.4)	0.2 (0.0 to 0.6)	0.2 (0.0 to 0.7)
Global	111 (110 to 113)	42.6 (37.7 to 47.4)	273.2 (241.8 to 303.7)	1.5 (1.0 to 2.2)	9.6 (6.9 to 14.1)
Non-Pregnant Women Aged 15-49 Years					
African Region	124 (121 to 126)	37.8 (31.8 to 43.7)	69.9 (58.8 to 80.7)	1.8 (1.3 to 2.7)	3.3 (2.4 to 5.1)
Region of the Americas	131 (128 to 134)	16.5 (12.2 to 23.7)	38.1 (28.1 to 54.7)	0.5 (0.3 to 1.1)	1.3 (0.7 to 2.6)
South-east Asia Region	121 (117 to 126)	41.5 (28.7 to 52.6)	190.6 (131.7 to 241.3)	1.9 (0.7 to 3.8)	8.6 (3.4 to 17.5)
European Region	128 (126 to 130)	22.5 (16.4 to 30.1)	48.4 (35.2 to 64.7)	0.6 (0.3 to 1.2)	1.3 (0.7 to 2.6)
Eastern Mediterranean Region	123 (120 to 126)	37.7 (30.7 to 45.6)	55.2 (44.9 to 66.8)	1.8 (1.1 to 2.6)	2.6 (1.6 to 3.8)

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