



4. IRON METABOLISM ASPECTS: MALABSORPTION, TRANSPORT AND STORAGE RELATED DISEASES

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Introduction. Iron Deficiency Anemia (IDA), the main Iron deficiency-based disorder, is one of the leading global health problems, affecting 22,8% (2019) of the population, the most exposed groups being rapidly growing children and premenopausal women. However, due to the variety of causes of iron deficiency, more groups have begun developing IDA. This fact provokes huge interest for medical researchers and clinicians upon diagnosis and treatment.

Aim of study. To identify the damage within metabolism mechanisms in iron deficiency and its systemic manifestations upon organ systems involved in the supply, transport and storage of iron.

Methods and materials. Systemic review of articles regarding the iron metabolism, transport and storage, and the manifestations of the disorders, provided by PubMed dated 2011-2019 and data provided by ScienceDirect dated 2014-2020. At the end of the selection process, 17 sources have been selected using keywords including „Malabsorption. Anemia. Deficiency. Transferrin. Metabolism.”, to be used in the literature review.

Results. The physiological iron circuit presents the uptake of iron from transferrin by erythroblasts development, the incorporation of iron into the heme, red blood cell (RBC) production, RBC survival, and RBC senescence in the spleen through transferring with the recycling of iron to the bone marrow. Diet is necessary to compensate for the amount of iron normally lost daily via the sloughing off of intestinal mucosal cells and menstrual blood loss in people with female reproductive systems of reproductive age. Various damage alongside the circuit (e.g. weak bioavailability, antacid treatment or elevated gastric pH, competition with other metals (e.g., copper, lead), loss or dysfunction of absorptive enterocytes, bowel resection, defects of intrinsic enterocyte, abundant blood loss etc.) including genetic disorders (e.g. Sickle cell anemia, . Hypotransferrinemia, etc.) and dietary insufficiency, can occur causing deficiency. The before-mentioned are able to cause bone-marrow, liver, spleen and intestine disorders, joined by complex clinical manifestations.

Conclusion. Iron deficiency associated disorders can present various etiological causes which require careful observation of the iron metabolism and its every step. Disorders caused by lack of uptake, malabsorption or other dysregulations manifest through systemic affections which can get more complicated if neglected.