

Special Article - Iron Deficiency

The Iron and the Psyche

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Short Communication

The body and the psychic apparatus are living entities which intersect at the level of a capital organ, the brain. Metabolic disorders are somatic pathologies whose impact at the cerebral and psychic levels can be manifested by various neuropsychological symptoms. Some of these disorders constitute a real public health problem, as is the case with iron deficiency, which is not specific to poor societies. This deficiency also affects so-called rich societies, which are affected by multiple diseases involved in iron metabolism, and by various dietary regimes liable to induce metabolic imbalances. Like many minerals, iron plays a major role in neuropsychic functioning, and any iron deficiency is likely to favor the emergence of neuropsychic symptoms. Numerous studies confirm the existence of negative impacts related to such a deficiency on the body and the psychic apparatus at the same time. Symptoms include sleep disorders, character, behavior, emotional and mood disorders, as well as memory and learning difficulties in children and adults. These disorders can be felt in the life of the individual and his family and socio-professional environment, and can lead to disabilities caused by anxiety, physical and psychological fatigue, anhedonia, and difficulties in making decisions and performing sometimes mundane tasks in everyday life. Iron is indeed involved in cerebral oxygenation and intracerebral production of certain neurotransmitters involved in sleep, mood, character, emotions, and eating behaviors, such as serotonin and dopamine. These endogenous substances are produced from amino acids of food origin, Tryptophan and Tyrosine, which undergoes a neurochemical transformation, thanks in particular to iron which plays the role of enzymatic cofactor for the biosynthesis of the direct precursors of these neurotransmitters. The need for iron intake increases in children and adolescents, in women during pregnancy and lactation, as well as in elderly, athletic or regular blood donors. In physiopathology, iron deficiency concerns several medical specialties, including surgery, hematology, oncology, gastroenterology, nephrology, nutrition, pediatrics, and geriatrics. In psychiatric practice, martial deficiency has been considered more as a consequence of disorders than a real physiopathological factor of these disorders. The biological diagnosis of this deficiency,

which more often affects women than men should not be linked exclusively to serum iron but rather to iron reserves represented by the plasma Ferritin level and the calculation of the Coefficient of Saturation of iron in Transferrin. The indication of the prescription of iron depends on the way the doctor interprets the plasma results and the biological standards set by the blood testing laboratories. Our clinical experience over two years shows a high percentage of patients consulting in psychiatry whose biological profile indicates the presence of iron deficiency even in the absence of any anemia. In patients with serum ferritin of less than or equal to 100ng/ml or a Coefficient of Saturation of iron in Transferrin of less than 30%, the prescription of iron alone or in addition to other psychotropic drugs appeared in more than half of the cases will bring beneficial changes in fatigue, mood, anxiety, character, emotionality, sleepiness, and eating disorders. The pathologies frequently found in patients with iron deficiency were those that caused visible or invisible bleeding in the gynecological, digestive and urinary tract. Other causes were also found, such as surgical hemorrhagic procedures in the months and sometimes years before, chronic inflammatory bowel disease, vegetarian diets, excessive consumption of tea and/or coffee, course of certain iron chelating drugs at the digestive level, and regular blood donation. Psychiatric disorders include anorexia nervosa, Lathenien de Ferjol syndrome, Pica, and excessive consumption of coffee as disorders that may lead to iron deficiency. This in turn could lead to physical and psychiatric symptoms that can aggravate the clinical picture and make psychiatric care more complex. We advocate, in the face of any psychiatric disorder with the symptoms mentioned above, to ask the patient about his eating habits, his medical and surgical history, and the physical symptoms felt and which may be compatible with a martial deficiency. In case of doubt, a blood test will be useful to investigate and treat the martial deficiency, without neglecting the interest to refer the patient who is seen in psychiatric consultation to a specialist colleague in order to carry out the rest of the balance sheet and the pathologies involved. Nutritional management will be very useful when the causes of deficiency are of a nutritional nature, which is the case particularly in people under special diet, in elderly people whose iron deficiency could be favored by multiple comorbidities, in pregnant or breastfeeding women, and high-performance athletes with insensitive iron losses. Despite the fact that the management of patients suffering from various psychiatric disorders today includes a rich and varied therapeutic arsenal thanks to innovative neuroscientific discoveries for more than a century, it seems necessary to take into consideration the presence of a possible iron deficiency within the body, which may be involved in the symptoms and which it will be necessary to treat.