

Case Report

Anti-Tuberculosis Drugs-Induced Pellagrous Erythema

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Abstract

Pellagra is a deficient disease due to deficit in vitamin PP or niacin. It is characterized by the “3D” classic syndrome: photo-distributed dermatitis termed early and frequent “pellagrous erythema”, chronic diarrheal and an advanced stage dementia. The main aetiologies are: nutritional deficiencies in niacin, chronic alcoholism, gastrointestinal malabsorption disorders. Some medicines may engender vitamin PP deficiency by competitive inhibition on the target cells of vitamin PP and the synthesis of niacin through its binding to vitamin B6. We report a case of early pellagra in the form of pellagrous erythema with anti-tuberculosis drug.

Key Words: Pellagra; Pellagrous Erythema; Isoniazid; Pyrazinamide; Benin.

Introduction

Discovered in 1735 by Gaspar Casal in Spain, pellagra is a deficient disease due to a deficit in vitamin PP. It combines photo distributed dermatitis, diarrhoea and an advanced dementia (3D syndrome). Several aetiologies can generate this deficit [1-3]. We reported a case of pellagrous dermatitis caused by anti-tuberculosis drugs.

Observation

A 50-year-old black African, non-alcoholic and non-smoking woman, was referred by the anti-tuberculosis Centre of Cotonou for asymptomatic pigmented macula of progressive onset in the photo-exposed areas without any other associated signs. These lesions showed up two months after the beginning of an anti-tuberculosis treatment for pulmonary tuberculosis, associating drugs such as rifampicin, isoniazid, ethambutol and pyrazinamide.

Physical check-up revealed this patient in good general condition, with scaly and pigmented large lesions. The lesions were on the face, neck, anterior and posterior necklines, thoracic limbs and feet in a bilaterally and roughly symmetrical manner. The oral mucosa was unscathed. There was no evidence of dehydration, signs of digestive or neuro-psychiatric symptoms. The body mass index was 20kg/m². The patient had a normal and balanced diet. The rest of

the somatic examination was normal. The diagnosis of cutaneous adverse drug reaction (ADR) type of pellagrous dermatitis was concluded. The lesions were disappeared completely after 6 weeks of treatment with nicotinamide (Nicobion®: 2 g / day), vitamin B complex. Tuberculosis treatment was continued.

Discussion

Vitamin PP plays a fundamental role in the synthesis of nicotinamide adenine dinucleotide (NAD) and nicotinamide adenine dinucleotide phosphate (NADP) which is essential in cellular oxido-reduction reactions, respiratory chain and fatty acid synthesis. Clinical manifestations of pellagra are the consequence of low levels of NAD and NADP, necessary to maintain cellular energy reactions. This is more noticeable in brain tissue where the need in energy is high and in tissues that have a rapid cell turnover rate such as the digestive tract and skin. In the skin, it is the exposed areas that are damaged first, because the energy needs are more important for the repairing of the damage incurred from sun exposure. Two-thirds of vitamin PP are derived from the transformation of tryptophan by intestinal bacteria under the action of vitamins B1, B2 and B6, and 1/3 are of exogenous (food) origin [1, 4].

Pellagra is endemic in sub-Saharan Africa where the main aetiologies are: nutritional deficiencies in niacin and chronic alcoholism [1,5,6]. Other aetiologies have been reported worldwide, including gastrointestinal malabsorption disorders, and more rarely, carci-

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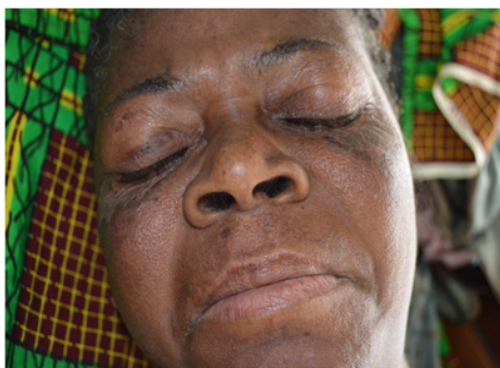


Figure 1: Scaly and pigmented lesions on the face



Figure 2: Scaly and pigmented lesions on the neck and necklines



Figure 3: Scaly and pigmented lesions on thoracic limbs



Figure 4: Scaly and pigmented lesions on the feet

noid syndrome and Hart up disease [1-3]. The use of certain drugs such as 6-mercaptopurine, 5-fluorouracil, hydantoin, phenobarbital, chloramphenicol, isoniazid and its derivative, pyrazinamide is also implicated [7-9].

With a chemical structure analogous to niacin, isoniazid exerts on the one hand, a competitive inhibition on the action sites of vitamin PP and, on the other hand, inhibits the synthesis of niacin by binding to vitamin B6. Pellagra is a rare side effect of isoniazid and its derivative, the pyrazinamide [1, 6, 10, 11].

Isoniazid and pyrazinamide have been incriminated in our patient. The causality analysis was carried out for ADR on the basis the French pharmacovigilance center's criteria of accountability:

- Extrinsic accountability: several identical cases of pellagrous erythema have been reported in the literature with isoniazid and / or its derivative pyrazinamide [1, 6, 10, 11]
- Intrinsic accountability

The onset of symptomatology was observed after the introduction of suspect drugs

We have no argument in favor of another etiology

The clinical characteristic of cutaneous ADR was in favor of

pellagrous erythema

The mode of action of isoniazid and its derivative, pyrazinamide, known to induce vitamin PP deficiency as described previously.

Because of the benefit / risk ratio, we have not stopped suspicious drugs, but we are supplemented by the addition of vitamin PP.

Conclusion

Pellagrous dermatitis under anti-tuberculosis drugs is a benign and rare form of cutaneous adverse drug reactions that does not require stopping the drug in question. Supplementation with vitamin PP makes it possible to compensate for this deficit.

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