

Patients with multiple sclerosis treated with high doses of biotin: prevention of significant biological examination disturbances by hospital pharmacists

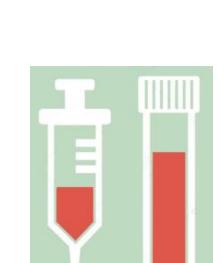
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#EAHP2019
NP-001



Introduction

- BIOTIN = vitamine B₈.
- Used at high dose (300 mg/d) used in primary or secondary forms of multiple sclerosis (MS).
→ Temporary Use Authorisation in France since June 2016
- Some biological tests are biased by this treatment, including immunoassays using biotin as a reagent.



Results overestimated : competitive assays : eg thyroid hormones : T3, T4

Results underestimated : immunometric assays : eg thyroid stimulating hormone : TSH

In 2007, the ANSM (Agence Nationale de Sécurité du Médicament) drew the attention of biologists and hospital directors. Pharmacists, despite their primary role in patient care have been forgotten.

→ Organization set up by hospital pharmacy in collaboration with neurologists, biologists and the patients.

Materials & Methods

- Three types of actions have been set up:
 - Neurologists report to the pharmacist the initiation of treatment by biotin at high dose,
 - Pharmacists update a shared file of patients with biologists,
 - Biologists integrate this information into validation software in order to neutralize biotin in the serum before assaying.
- Out patients are informed during the drug dispensation and receive a card entitled "patient treated with high dose biotin" to present to all health professionals. All pharmacist who can deliver biotin have been trained.

Results

- A series of 72 patients is monitored in our establishment on 01/02/2019.
- This initiative enabled to sensitize the different stakeholders to this problem: retrospectively, disturbed thyroid hormone dosages results were found.
- The literature also cites false normal values of troponinemia in the context of myocardial infarction and low dose disturbances (15 mg/d)¹.
- This collaborative work must enable to avoid this type of error.

¹ Biotin Supplements Can Interfere With Cardiac Troponin Tests: FDA November 28, 2017 Michael O'Riordan

Conclusion

- The central role of hospital pharmacists at the interface between patients, prescribers and biologists has been essential in setting up a strategy to limit biological interference.
- The verbal exchange between the patient and medical team remains one of the best means of prevention.
- The regional association of MS patients has also been contacted to relay this entire device to other facilities.
- General practitioners and pharmacists should also be warned.
- This information relay reinforces the importance of reasoning on the entire ambulatory-hospital pathway, especially since an extension of the indications is envisaged.

