

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



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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.



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