Poster

Synthesis and characterization of new carrier molecule-antibiotic conjugates for its study in the diagnosis of drug allergy

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ABSTRACT

Motivation: Quinolones represent an important category of antibiotics. Among them, fluoroquinolones (FQs) constitute the most important group. FQs present a wide range of activity against gram-positive and gram-negative bacterias.

Despite their tremendous benefits against bacterial infections and the fact that FQ hypersensitivity reactions are considered unusual, recently there has been an increase of the number of reported cases of hypersensitivity to FQs.

There are two types of hypersensitivity reactions, namely immediate reactions, which appear within one hour of the drug intake, and delayed reactions, which appear more than one hour after the drug intake.

Immediate reactions are the most frequent reactions, with symptoms like anaphylaxis or uticaria. The most common FQs are ciprofloxacin, moxifloxacin and levofloxacin.

The methods of diagnosis to FQ hypersensitivity are usually complex, because the clinical history is usually unreliable, skin tests cause false-positives and the drug provocation test is a very risky method.

In vitro tests are being developed, but there are currently no validated commercial tests.

The goal of our work is to make a new solid phase for performing immunoassays, able to be employed in the diagnosis of hypersensitivity to FQs (siprofloxacin, moxifloxacin and levofloxacin) by means of in vitro test. In these systems, the solid phase is conjugated to the drug-carrier protein adduct, which is specifically recognized and bonded by specific IgE from patients.

Methods: In order to optimize the conjugation of FQs to carrier protein, the reaction was first optimized with a simple primary amine molecule, like butylamine. After optimization of the reaction in solution, the same reaction is extrapolated to the solid phase.

Since ciprofloxacin and moxifloxacin have two reactive groups, the conjugation was performed with both groups, which will allow us to evaluate which part of the structure is recognized by specific IgE antibodies and, therefore, is involved in the allergic proccess.

REFERENCES

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