Poster #299

Interferon-gamma ELISpot assay facilitates safe drug rechallenge in severe cutaneous adverse reactions caused by anti-tuberculosis drugs

Amornrat Prasertcharoensuk, MD.[1] ,Yuda Chongpison, PhD, Ms, MBA.[2], Pattarawat Thantiworasit, MSc.[1], Supranee Buranapraditkun, PhD.[1], Pawinee Rerknimitr, MD., M.Sc.[3,4], Hiroshi Chantaphakul, MD., FAAAAI[1] and Jettanong Klaewsongkram, MD.[1,3]

[1]Division of Allergy and Clinical Immunology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand [2]Research Affairs, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
[3]The Skin and Allergy Research Unit, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [4]Division of Dermatology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
*Corresponding author E-mail: Jettanong.K@chula.ac.th

Introduction

Culprit drug identification in patients diagnosed with anti-tuberculosis (anti-TB) induced severe cutaneous adverse reaction (SCAR) remains a difficult task. Although drug challenge is the diagnostic gold standard, it could have unintended harmful consequences among SCAR patients.

Objectives

To explore the possibility of utilizing Interferon-gamma (IFN-γ) enzyme-linked immunospot (ELISpot) assay to safely guide anti-TB re-administration among SCAR subjects.

Methods

The frequencies of drug-specific IFN-γ releasing cells in peripheral blood mononuclear cells (PBMCs) were measured prior to a reintroduction of isoniazid, rifampin, pyrazinamide, and ethambutol .

Positive ELISpot response was defined as ≥ 20 spot-forming units (SFU)/10^6 PBMCs.

Results

Table1: Baseline characteristics ($N_{subjects}$=14)

Average age	47.93±19.60 years
Gender	M:F = 9:5
Phenotypes	SJS = 50 % DRESS = 50 %
Underlying disease	None = 57.14% HIV = 35.72% SLE = 7.14%

Figure1 :Average frequencies of detectable anti-TB induced IFN-γ releasing cells (SFU/10^6 PBMCs) (Ndrugs=32)

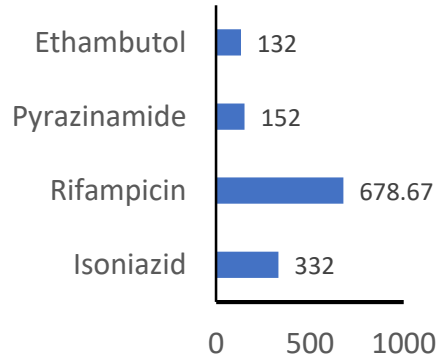
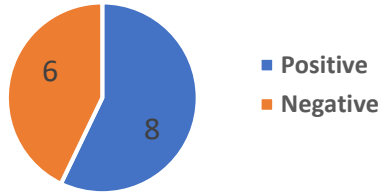
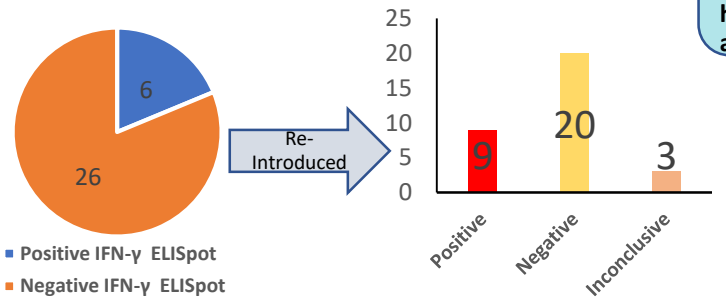


Figure 2: Percentage of patients with positive ELISpot (Nsubject=14)



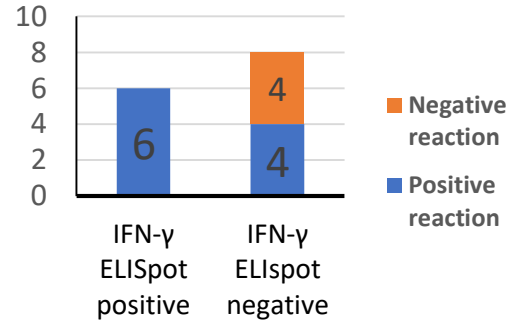
IFN-γ ELISpot assay was positive in 57.14% (8/14) of SCAR subjects. (N_{drugs}=16/46)

Figure 3: Yields of reintroduction of 32 tested drugs



IFN-γ ELISpot positive was 18.8% of the tested drugs.
The reintroduction of anti- TB yielded positive, negative, and inconclusive results in 9 ,20, and 3 challenge, respectively

Figure 4: Reaction after reintroduction anti-TB by IFN-γ ELISpot positive and IFN-γ ELISpot negative



IFN-γ releasing cells yielded 60% sensitivity and 100% specificity.
IFN-γ ELISpot assay and drug reintroduction had at least a 64.3% concordant rate to identify anti-TB hypersensitivity status in patients with history of anti-TB induced SCAR.

Conclusion

The measurement of drug-specific IFN-γ releasing cells was beneficial as prior guidance for the reintroduction of anti-TB drugs. The high specificity of the test would be helpful to identify the culprit drugs and reduce the use of harmful drug rechallenge in SCAR subjects caused by anti-TB.

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