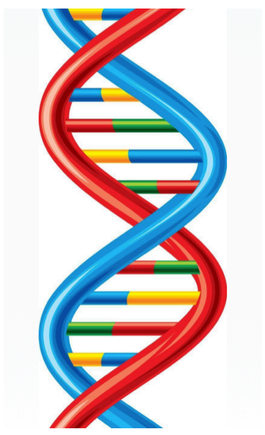
5PSQ-117

DETERMINATION OF GENETIC POLYMORPHISMS IN THE DIHYDROPYRIMIDINE DEHYDROGENASE GENE IN A PATIENT WITH GASTRIC ADENOCARCINOMA TREATED WITH FLUOROPYRIMIDINES: A CASE REPORT

A. GANFORNINA ANDRADES, C. RODRIGUEZ MORETA, M. CORRALES PAZ, M.J. MARTINEZ BAUTISTA, MV MANZANO MARTIN
Pharmacy Service, Puerta del Mar University Hospital, Cádiz, Spain
anaganand@gmail.com

BACKGROUND AND IMPORTANCE

Fluoropyrimidines are a foundational component of chemotherapy for solid tumour malignancies. The best-known cause of **intolerance to fluoropyrimidines** is **dihydropyrimidine dehydrogenase enzyme (DPD) deficiency**, which can result from deleterious polymorphisms in the gene encoding DPD (DPYD). **Partial or total deficiency** of this enzyme is related to **severe toxicity** and in some cases it can cause the death of the patient.



AIM AND OBJETIVES

To **determine polymorphisms in the DPYD gene** in a patient with gastric adenocarcinoma treated with fluoropyrimidines in order to avoid overexposure and toxicity associated to these drugs.

MATERIAL AND METHODS

1. A 66-year-old man was diagnosed with **stage III gastric tubular adenocarcinoma**
2. **Treatment plan** → four cycles of neoadjuvant chemotherapy with the **FLOT protocol**: docetaxel 50 mg/m2 + calcium folinate 200 mg/m2 + oxaliplatin 85 mg/m2 + 5-FU 2600 mg/m2 as a 24-hour intravenous infusion, every 14 days; followed by surgical intervention
3. Before starting the chemotherapy regimen, **determination of DPD deficiency was requested**

RESULTS

The results showed **mutation c. 1236 G/A (HapB3)** for the DPYD gene, which indicated overexposure to fluoropyrimidines and increased toxicity like diarrhea, mucositis, neutropenia and neurotoxicity. Due to the polymorphism detected in DPYD gene, a 5-fluorouracil **dose adjustment was required**.

The patient received four cycles of chemotherapy from April to June 2021 according to the dose recommendations of the oncology pharmacist. Treatment was started with a **50% dose reduction** of 5-fluorouracil. After first infusion, it was well tolerated with few reported adverse side effects such as low-grade fever, xerostomia and neutropenia. Neutropenia was successfully treated with granulocyte colony stimulating factors and the patient was able to continue the treatment, increasing the 5-fluorouracil dose by **25% in the last two cycles**. Despite excellent tolerance to chemotherapy, the patient died after gastrectomy due to post-surgical complications.

CONCLUSION AND RELEVANCE

Genetic analysis for the **determination of polymorphisms in the DPYD gene** allows us to **predict the potentially serious toxicity of fluoropyrimidines**, encouraging the individualised use of these drugs. In our case, the patient was at risk of developing severe toxicity so a dose adjustment of 5-fluorouracil was required.