

# EVALUATION OF THE KINETICS OF THE IMMUNOMODULATING ACTIVITY OF PIDOTIMOD ON HUMAN NEUTROPHILS.

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**KEY WORDS** PIDOTIMOD, neutrophil, phagocytosis.

## INTRODUCTION

PIDOTIMOD (PGT/1A, 3-L-pyroglutamoyl-L-thiazolidin-4-carboxylic acid) is a synthetic peptide displaying immunopotentiating activity both in animals (1) and in humans (2,3). In particular, we have previously shown (3) that PIDOTIMOD is able to enhance human neutrophils phagocytosis.

The aim of this work was to evaluate, in an open trial, the kinetics of the immunomodulating activity of PIDOTIMOD in human neutrophils.

## MATERIALS AND METHODS

**Experimental design:** The drug (sachets, 400 and 800 mg) was provided by POLI Industria Chimica S.p.A. (Quinto Stampi - Milano). 20 healthy volunteers (mean age  $31.6 \pm 5.2$  years) were randomly assigned to two groups (A and B) of 10 subjects and received:

Group A: 400 mg/2/die

Group B: 800 mg/1/die

The neutrophil phagocytic activity was evaluated before treatment (T0), 3 and 21 days after the beginning of the study (T3 and T21) and 7 days after the end of the treatment (T28).

**Phagocytosis assay:** Phagocytosis was evaluated using purified neutrophils (4) and C3-coated zymosan (C3zy) as particles for uptake, according to Metcalf et al. (5). Results were expressed as phagocytosis index (P.I.: number of phagocytized particles per cell) and % phagocytosis (number of cells with phagocytized organisms/total number of cells x 100).

Statistical significance was evaluated by the Student's t test: a p value < 0.05 was taken as statistically significant.

## RESULTS AND CONCLUSIONS

As shown in figure 1 (A and B), the P.I. was significantly enhanced at T3 (vs T0) as well as at T21 both in Group A and Group B. Seven days after the end of the treatment (T28) the P.I. was similar to the one observed before at basal time (T0) in Group A, whereas it was still enhanced in Group B.

The number of phagocytizing neutrophils was significantly increased at T3 in both groups, but it was enhanced also at T21 in Group B. Even if the mechanism of action on neutrophils needs further investigations, our findings confirm the immunomodulating activity of PIDOTIMOD on these cells and suggest that this activity could be relevant for the clinical effect of the drug.

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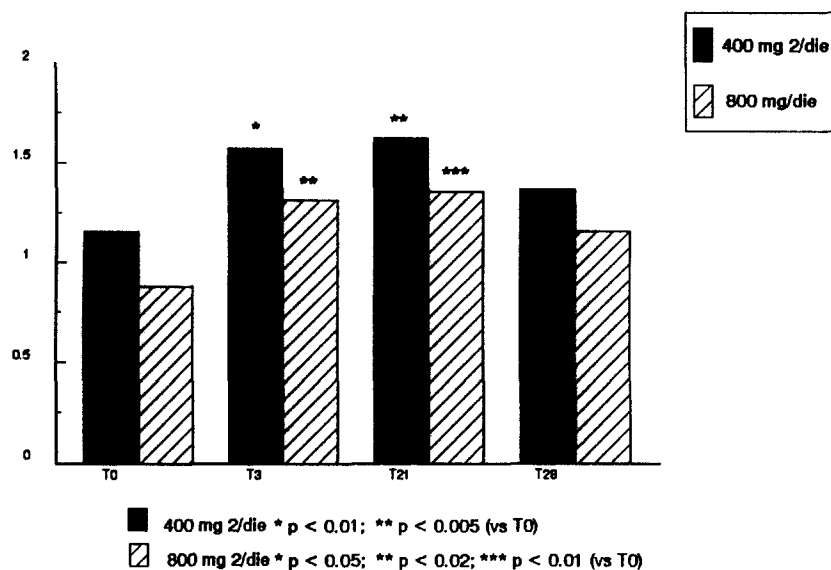


Figure 1A - Phagocytic activity of neutrophils (P.I.)

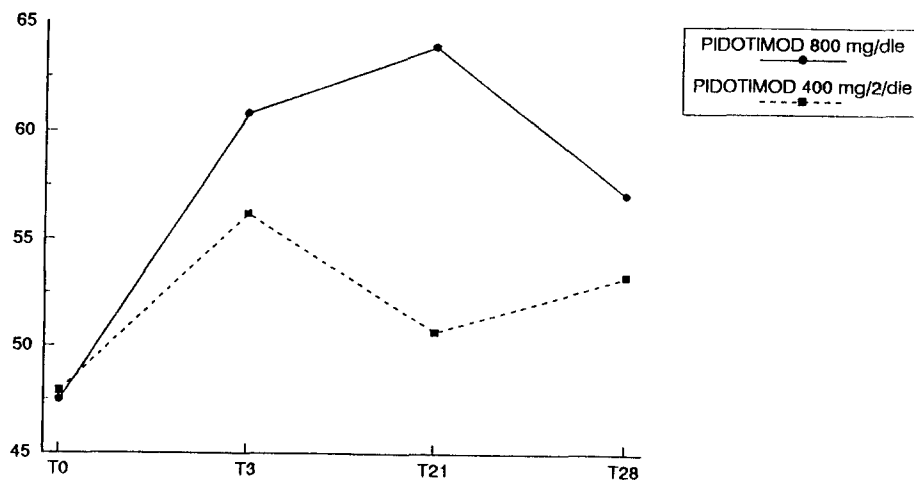


Figure 1B - Phagocytic activity of neutrophils (% phagocytosis)