

## 8. Rheumatoid arthritis - response to penicillamine therapy using thermography

### (Case report)

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We have been using thermography to assess the response to D-Penicillamine in patients with active rheumatoid arthritis. The data from one patient is presented. This 50-year old builder was commenced on a dose of 250 mgs. daily, the dose being increased by increments of 250 mgs. daily each week so that after one month he received 1 G of D-Penicillamine daily (shaded areas of Figs. 1 and 2). This dose was maintained until four months after commencing therapy when he developed thrombocytopenia and the drug was abruptly discontinued, to be recommenced one month later in a dose of 150 mg. daily. The mean

thermographic index (TI) of hands and knees was measured weekly for the first month and then at monthly intervals to six months. The change in thermographic index is shown in both Figs. 1 and 2 with clinical parameters of pain score (P.S.) and duration of morning stiffness (M.S.) in hours in Fig. 1. The plasma viscosity (P.V.) which is a measure of fibrinogen and immunoglobulin concentrations correlates to some extent with the E.S.R. and is shown in Fig. 2.

During the first month of therapy the TI increased in spite of some improvement in M.S. and P.S. This might represent the effects of physiotherapy as indicated by Dr.

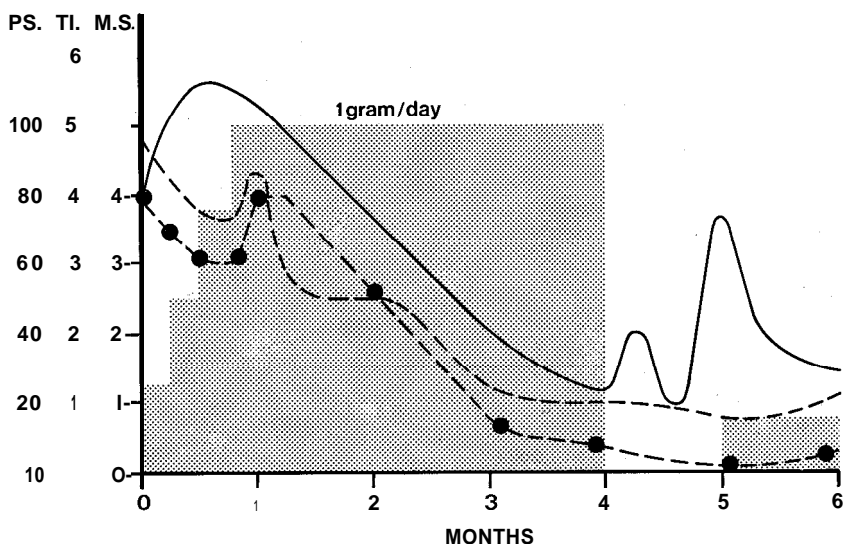


Fig. 1. Thermographic index (—); pain score (-----); morning stiffness (●---●).

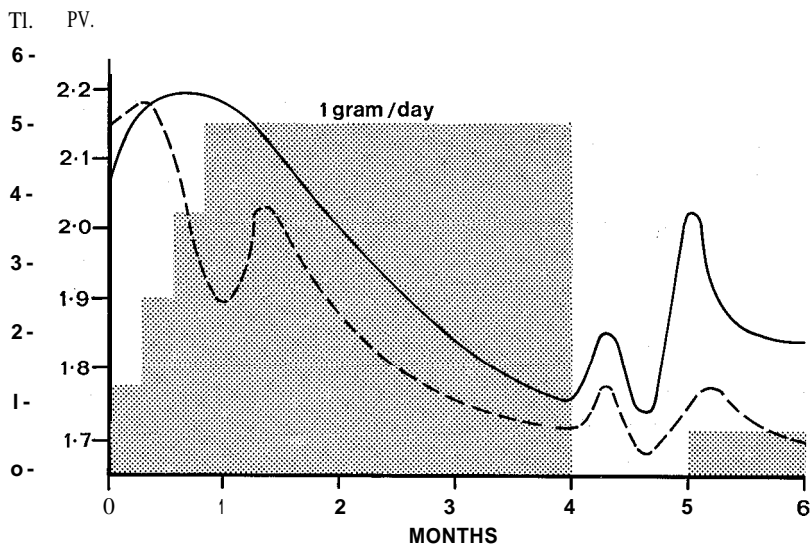


Fig. 2. Thermographic index (—); plasma viscosity (-----).

Tiselius in his paper. Between the second and fourth months there was a marked reduction in TI which correlated with an improvement in P.S., M.S. and P.V. However on withdrawal of D-Penicillamine at four months there was evidence of a rapid increase in inflammation as assessed thermographically and by the plasma viscosity, whereas the clinical parameters continued

to show an improvement. Clinical evidence of increased activity of disease became evident two months after withdrawal of the drug.

These results suggest that the TI is a sensitive method of detecting changes in activity of disease and may precede clinical methods of assessment.