Treatment of rheumatoid polyarthritis with synthetic D-penicillamine 'Ho-Bay 950'. A. Santamaría, P. Barceló, M. Menchón, R. Ruiz de la torre, and M. Ripolls Gómez

Twenty patients affected with rheumatoid polyarthritis were treated from 6 to 14 months with synthetic D-penicillaminase (900 mg/d). Clinical improvement was evident, with the decrease of ESR beginning with the third month, thereby permitting the decrease and even the suspension in 7 cases of the dosage of steroids. The Cu and Fe decreased somewhat, but always within the normal physiological limits. Serological values decreased, attaining negativization in 10 cases. Similarly there was a decrease of IgG and IgM; serum C_1 and C_3 became normal. The 'R rosette' test showed an increase. Histological study of the synovial tissues showed favourable evolution of the inflammatory alterations. All of the changes became manifest beginning with the third or fourth month. The only side effects encountered were light proteinuria in one case, hypogeusia in 2, and skin rash with pruritus in another 2 which did not cause suspension of treatment.

Neutrophil chemotaxis in patients with rheumatoid arthritis: mechanisms responsible for impairment. A. G. Mowat (*Nuffield Orthopaedic Centre, Oxford*)

The polymorphonuclear leucocyte (PMN) is vital for the control of bacterial infection and plays a major role in wound healing. Most of the phases of PMN activity in the extracellular space, including phagocytosis and cell killing, are normal in patients with rheumatoid arthritis but chemotaxis is impaired (Mowat and Baum, 1971). The low mean chemotactic index $\pm$ 1 SD in patients with rheumatoid arthritis (369 ± 87) compared with controls (544 ± 78) has been confirmed. One suggested mechanism of prior ingestion of immune complexes has been supported by the demonstration of a significant correlation between the amount of soluble immune complexes in the serum and the chemotactic index in 21 unselected inpatients ($P < 0{\cdot}01$).

However, other mechanisms alter the chemotactic index. The mean index $\pm$ 1 SD in 21 patients with rheumatoid arthritis undergoing orthopaedic surgical treatment improved from a preoperative value of 369 ± 87 to 486 ± 98 on the second postoperative day, with a gradual fall to 433 ± 125 on day 6 and 372 ± 70 on day 14. Blood transfusion did not cause the improvement. Patients receiving corticosteroids showed a higher initial value with a smaller rise. Control subjects with osteoarthrosis showed no change over the period of an operation of similar magnitude. Although it seems likely that these changes are related to changes in blood cortisol levels, no alteration in the index can be produced by incubating the PMN with hydrocortisone *in vitro*. The results may explain the modest increase in incidence of bacterial infections during life and the relatively normal wound healing in these patients (Garner, Mowat, and Hazleman, 1973) despite all the factors which might be expected to seriously alter these findings. Further, the increased incidence of bacterial infection as a cause of death may reflect the failure of the PMN to recover normal chemotaxis at this point.

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Neutrophil immune complex interactions: possible contributions to rheumatoid inflammation. R. Turner, R. Collins, M. Parker, and L. De Chatelet

Previous studies have suggested that phagocytosis of immune complexes by neutrophils produces metabolic and functional alterations of these cells which may be important in the inflammatory process occurring in rheumatoid arthritis. Studies from our laboratories have described an *in vitro* system for the study of neutrophil phagocytosis of immunoglobulin G-rheumatoid factor (IgG–RF) complexes (Turner and others, 1973) and a system for measuring the uptake of chromium-51 tagged complexes has been utilized (Turner and others, 1974) to further study this phenomonon. These studies are extended here utilizing the chromium tagged immunoglobulin G system and the measurement of hexose monophosphate shunt activity by the conversion of glucose l-14 carbon CO_2 to study the interactions between soluble and insoluble complexes, rheumatoid factor, and neutrophils.

Results to date utilizing neutrophils incubated with various substances for 30 minutes at 37°C have shown: (1) neutrophil uptake of insoluble IgG complexes was not significantly affected by the addition of rheumatoid factor to the system (mean $\pm$ SEM uptake live-killed cells $n = 6$: IgG $= 19 \pm 3$, IgG–RF $= 20 \pm 7$). This addition also failed to significantly change the hexose monophosphate shunt activity of the neutrophils (phagocytosing-resting cpm $^{14}CO_2$: IgG = 16 131; IgG–RF = 18 125). (2) Soluble immunoglobulin G complexes in the same concentration as the insoluble complexes were not significantly taken up by the neutrophils and did not trigger an increase in shunt activity even in the presence of rheumatoid factor (phagocytosing-resting cpm $^{14}CO_2$: IgG = 126, IgG–RF = 296. (3) Rheumatoid factor added to soluble immunoglobulin G complexes produced precipitation of 77% of these complexes. Our studies therefore have shown that only insoluble IgG and/or IgG-RF are capable of being taken up by the neutrophils and of producing metabolic changes in these cells.

Additional studies are in progress to delineate further the interactions of complexes and neutrophils in the inflammatory process which may be occurring in the joints of patients with rheumatoid arthritis.

References

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A new associate spondyloarthritis. Does 'rheumatoid spondylo arthritis' exist? J. Rotés Querol, J. Tena, J. A. del Olmo Bru, J. Granados, J. Comulada Taberner, and J. Mitja Piferrer

We observed that all cases had clinical, radiological, and biological features common to both diseases but none were characteristic of one or the other. On the basis of these data we consider these cases not as mixed processes of AS and RA but rather as two different diseases. Fallet, on the basis of a simple coincidence of both diseases, estimated the frequency rate being between 1/500 and 1/2000 for AS and 1/100 for RA; the statistical possibility of encountering such a coincidence would range from 1/50000 to 1/200000.