

together with omission of passive transfer tests, makes it impossible to place our case in any group of the proposed classifications (3, 5).

Our patient showed ANA in a high titre, but no other signs of SLE or other collagen diseases. Nevertheless, cases of SLE with solar urticaria (13), even as presenting symptom (2), have been reported. In our case, however, SLE seems unlikely.

Hormones are generally known to be modulating factors in urticaria (9), and the anamnestic tolerance of our patient to sunlight when she was taking pills containing oestrogen is noteworthy. Oestrogens have been used in the treatment of solar urticaria (3) without any dramatic effect.

In further cases of solar urticaria attention should be paid to the number of dermal mast cells and to the symptoms of any gastric ulcer. Therapeutically, antihistamines (especially hydroxyzine hydrochloride) and oestrogens are worth trying.

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Circulating Anticoagulant and Serological Tests for Syphilis

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Abstract. Circulating anticoagulant (CA) and particularly lupus anticoagulant are commonly associated with biological false-positive tests for syphilis (BFP-STs) in patients with collagen diseases. CA was presently found in the sera of 8 out of 30 subjects with chronic BFP-STs without collagen or autoimmune diseases. It was not found in any of the 21 patients with various stages of syphilis. In 5 out of 21 elderly subjects (age >70 years) in whom a positive BFP-ST was detected, there was no CA. It is concluded that the association between CA and BFP-STs is found only in patients with collagen and autoimmune diseases and in some of the younger chronic BFP-STs reactors. It is not detected in syphilitic patients or elderly subjects in whom a high incidence of BFP-STs can be found. The difference in the incidence of this association is probably due to the differing biologic behaviour of these autoantibodies.

Key words: Circulating anticoagulant; Lupus anticoagulant; Serological tests for syphilis; Syphilis

The appearance of circulating anticoagulants (CA), directed against most of the clotting factors may

complicate collagen diseases, especially systemic lupus erythematosus (SLE) (1-4). The most frequently found CA is a non-specific interfering inhibitor called lupus anticoagulant, found in approximately 10% of SLE patients (7-8), which is directed against the prothrombin converting complex. The CA was also detected in other collagen and autoimmune diseases, such as rheumatoid arthritis (9), periarteritis nodosa (4) and chronic active hepatitis (4). A high incidence (up to 70%) of biologic false-positive serological tests for syphilis (BFP-STS) can be found in SLE patients with CA (7) in comparison with an incidence of 10% in SLE patients without BFP-STS (11). Similarly, thrombocytopenia is more frequent in SLE patients with BFP-STS (35%) (9). Presumably, the association between CA, BFP-STS and thrombocytopenia is due to an immunological cross-reaction of the antibodies to the phospholipid component of the different antigens, such as the prothrombin-converting complex, the cardiolipin and the phospholipid sites of the platelet membrane (6-8).

The purpose of this work was to investigate the relationship between CA and STS by searching for the presence of CA in three groups of subjects, namely: 1) in patients with chronic biologic false-positive reaction without evidence of collagen disease, autoimmune disease or syphilis, 2) in patients with documented syphilis, 3) in patients older than 70 years in whom BFP-STS was found (12).

MATERIALS AND METHODS

Subjects

Group A. The serum of 30 patients (21 females and 9 males, mean age 41.4 years), proven to be chronic BFP-STS reactors, was examined. Serum samples and clinical data were collected from a central laboratory specialized in the detection of syphilis. All patients had had a positive antilipoidal test for at least 6 months, a negative treponemal test for syphilis (TPI, FTA-ABS) and there was no other clinical or laboratory evidence of syphilis, or other venereal or collagen diseases. They were diagnosed following pre-employment examinations.

Group B. Consisted of 21 luetic patients (11 females and 10 males, mean age of 35 years): 13 of them had latent syphilis, 6 had neurosyphilis and 3 secondary syphilis; all of them had a positive lipoidal test.

Group C. Consisted of 21 elderly patients (13 females and 8 males, aged 72-88 years, mean age 79.7). No patients presently examined had any history of findings compatible with an acute infective process during the 6 months prior to the present examination, or a history and findings compatible with syphilis or a collagen disease.

METHODS

Serologic tests

Syphilis tests. In all patients the *Treponema pallidum* immobilization test (TPI), the FTA-ABST test, the VDRL, the Wassermann and the Rappaport rapid tests were performed.

The screening test for CA was performed according to a modification of the method described by Laurell & Nilsson (6), based on the ability of sera containing CA to prolong the coagulation time of normal plasma, while using diluted thromboplastin. This ability is enhanced in the presence of a lupus circulating anticoagulant (8).

The partial thromboplastin time (PTT) was performed according to the technique of Proctor & Rappaport (3). If in one of these tests the result was found prolonged, further specific examinations for the presence of CA were performed, including the mixing test (4) and the thromboplastin dilution test (3).

RESULTS

CA was detected in the sera of 8 (5 males and 3 females, mean age 43 years) (26.6%), out of the 30 patients with BFP-STS. Six of the 8 patients had two positive antilipoidal tests (VDRL, Rappaport) and the other 2 had only a positive Rappaport test.

CA was not detected in the syphilitic patients. Nine syphilitic patients had undergone major surgery during the preceding 3 years without intra- or postoperative haemorrhagic complications.

Five (3 females, 2 males) (24%) out of the 21 subjects of group C comprising elderly patients were found to be BFP-STS reactors. Four of them had a positive VDRL or Wasserman test and in one subject both of them were positive. CA was not found in these 5 subjects, nor in the other subjects of these groups, who had negative BFP-STS reactions.

DISCUSSION

The incidence of BFP-STS in SLE patients with CA is higher than in those without (4). Similarly, a higher incidence of BFP-STS is found in patients having CA without evidence of SLE (9). These results led us to search for the presence of CA in BFP-STS reactors in whom there was no clinical or laboratory evidence of collagen diseases.

In previous studies performed on a small group of chronic BFP-STS reactors (2, 6), there was no evidence of CA. Our data are not in accordance with Johansson's results (5), who found CA in 35% of a group of 100 BFP-STS reactors: it is possible that the difference is related to the fact that in his study

group. Johansson included BFP reactors suffering from several diseases including SLE.

The incidence of CA was presently examined only in patients proven to be chronic BFP-STS reactors, who were accidentally discovered and had no collagen disease. Similarly to the results reported by Johansson, a high incidence (26%) of association between BFP-STS and CA was found. Our results support the idea of the existence of an association between these findings, suggesting a possible cross-reactivity between the antibodies to similar lipid-protein antigens, namely, the cardiolipin used as antigen for the serologic tests for syphilis and the prothrombin converting complex (4, 6, 8, 9).

Elderly subjects have a high incidence of BFP-STS, without evidence of collagen or other diseases (12). In this group of subjects which included 22% of BFP-STS reactors, we could not find any evidence of a CA. Similarly, we found no evidence of the presence of CA in the group of patients with a confirmed diagnosis of syphilis.

The varying incidences of CA found in patients with collagen disease and young chronic BFP-STS reactors on the one hand, and in elderly BFP-STS reactors and patients with syphilis on the other, suggest that there is a difference in the biological behavior of these auto-antibodies.

In addition, Aho (1), reported immunological differences between the antilipoidal antibodies in different populations; in patients with syphilis, the antibody responsible for the reaction is a mixture of IgG and IgM, while in subjects with BFP-STS, the antibody is mostly of the IgM type. A support for the thesis of the existence of a possible association between these two antibodies is found in the fact that, similarly to the "reagin", the immunological nature of CA is also polymorphous. In a third of the cases it has been characterized as an IgG (9), in another third as IgM (7) and in the remaining third as a mixture of IgM-IgG (7). Furthermore a correlation has been found between the clinical picture and the type of immunoglobulin constituting the CA. In the cases where a pure IgM was detected, the basic disease was not of an autoimmune nature, while when the immunoglobulin was IgG, collagen diseases were found in all but one case (7). Furthermore, the fact that reagins of differing immunological structure have been found in young and adult syphilitic patients (1), is also of interest.

The present results are in favor of the existence

of a clinical and laboratory correlation between BFP-STS reactions and CA. These facts suggest that in patients with autoimmune diseases, particularly SLE, and in young people with BFP-STS, a search for CA must be made, since these patients are often subjected either to biopsies or to surgical procedures. Despite the fact that a large number of patients with CA underwent operations, including major surgery, without hemorrhagic episodes (4), bleeding complications—even with a fatal outcome—were reported in the past (8).

The search for CA is highly recommended in BFP-STS reactors, since their association can herald the possible development of collagen disease in the future (10).

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