tuberculous drugs were discontinued and he was started on chlorambucil 4-6 mg daily for six months followed by 2 mg daily. He was also given a red cell transfusion and a 10-week course of prednisolone. He responded with a weight gain of 5 kg within four months, resorption of pleural fluid, and fall of serum IgM to 6 g/l in February 1978.

Comment

The features of WM are fatigue, weakness, anaemia, bleeding, hyperviscosity syndrome, and enlargement of the liver, spleen, and lymph nodes.[1] Nevertheless, WM may have predominantly pulmonary manifestations in the absence of some or most of the features listed above. Winterbauer *et al*[2] reviewed 15 such cases which showed the following radiological features: pleural effusion, diffuse pulmonary infiltration, hilar enlargement, and tumour-like opacities. Out of the six cases with pleural effusion, two were not associated with any parenchymal lesions, as was the case in our patient. While respiratory symptoms, anaemia, and weight loss were present, the main characteristic features of this disorder were absent in our patient. The high concentration of IgM in the pleural fluid indicated that IgM-producing lymphocytes were present in the pleura. Waldenström's macroglobulinaemia should be considered in any elderly patient with a high erythrocyte sedimentation rate, recurrent pleural effusion, and a protein content of more than 50 g/l. This disorder, though rare, is treatable and is compatible with many years of survival.

We thank the Medical Superintendent, Tan Tock Seng Hospital, Singapore, for permission to report this case.

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Response of "idiopathic" recurrent angioneurotic oedema to tranexamic acid

Recurrent episodes of angioneurotic oedema without any obvious allergic basis or identifiable precipitating causes present a not uncommon clinical problem, often difficult to manage. The episodes of oedema may cause considerable embarrassment and threaten obstruction to the airway. A well-recognised but rare cause for such attacks of spontaneous oedema is hereditary angioneurotic oedema, due to a genetically determined defect in the inhibitor to the activated first component of complement, C1 esterase inhibitor.[1 2] The symptoms of hereditary angioneurotic oedema are controlled by synthetic inhibitors, which act primarily as inhibitors of plasmin, though they also affect other systems. These are epsilon aminocaproioc acid,[3] and more recently its cyclic analogue tranexamic acid.[4]

We have recently seen two women with recurrent attacks of spontaneous oedema not due to hereditary angioneurotic oedema but responding dramatically to tranexamic acid.

Case histories

Case 1—A 24-year-old married woman had had intermittent attacks of angioneurotic oedema for about five years, but these had been particularly troublesome in the previous 18 months, occurring almost every day. The distribution of the oedema was widespread, occurring on her arms and legs and face and trunk, and varying in size from small lumps a few centimetres in diameter to large areas affecting part of a limb or a side of her face. Neither she nor her family had any history of allergy, and her attacks were unrelated to food or seasons or time of day or obvious environmental factors. The results of skin tests to allergens were negative, and those of other immunological studies are summarised in the table. The concentration of C1 esterase inhibitor (measured both immunochemically and functionally) and other complement components, measured on several occasions, was always within normal limits, even during an acute attack on two separate occasions. The patient was asked to keep a diary of her attacks for three weeks, during which she recorded an average of two to three separate swellings each day. She was given a trial of tranexamic acid, 1 g three times daily, and the effect was dramatic. The attacks ceased completely and the dose was gradually reduced to 0·5 g twice daily, on which she has been maintained symptom-free for 3 months.

Case 2—A 36-year-old married woman had had symptoms for about eight months; these consisted of episodes of swelling particularly of the face, tongue, and pharynx, although swellings were also widespread over her body. She suffered from hay fever in the summer, but the angioneurotic oedema occurred well after the hay fever had subsided, and was without obvious precipitating cause. At presentation her swellings had been occurring almost every day. Her serum showed no abnormalities of the complement system (table) or of her C1 esterase inhibitor concentration, and her serum IgE concentration was within normal limits. As the patient and her husband were becoming very apprehensive at the frequency and site of attacks, she was started on tranexamic acid, 1 g four times daily. Again, there was a dramatic effect, the attacks ceasing altogether. Her maintenance dose is now being reduced.

Comment

The clinical response in these two patients to tranexamic acid was striking. It strongly supports the view that the lability of effector mechanisms, and the "threshold" at which they react, vary from time to time, and may be an important factor in contributing to symptomatic illness, affecting the level of response to specific "trigger" stimuli. Presumably these two patients developed a low threshold of their kinin-release mechanisms, perhaps owing to an acquired defect of an uncharacterised inhibitor for which tranexamic acid substituted. The threshold would undoubtedly also be affected by the balance of circulating adrenal and "stress" hormones, perhaps being lowered at times of psychological and physical stress.

We conclude that patients with this syndrome of "idiopathic" recurrent angioneurotic oedema for which there is no clear allergic or familial basis, and which is not controlled by antihistamines, should be offered a trial of tranexamic acid.

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Immunological values in two patients with angioneurotic oedema (normal ranges are given in parentheses)

Case No	CH_{50} U/ml (25–45)	C1 esterase inhibitor		C3 g/l (0·75–1·7)	C4 g/l (0·14–0·54)	IgG g/l (6·00–16·00)	IgA g/l (0·90–4·50)	IgM g/l (0·40–1·80)	IgE U/ml (50–500)
		g/l (0·18–0·26)	Functional activity (75–130) % standard						
1	29	0·19	80	1·15	0·30	12·60	2·50	1·35	100
	31*	0·21	90	2·10	0·48				
	30*	0·20	100	1·35	0·24				
2	40	0·25	120	1·80	0·45	8·85	2·05	1·10	430
	40*	0·30	140	2·05	0·50				

*Specimen taken during an attack—that is, when a localised swelling was present.