PLATELET AGGREGATION UNDER THE INFLUENCE OF POLLEN EXTRACT T60

J. WOJCICKI, L. SAMOCHOWIEC

Laboratory of Clinical Pharmacology, Medical Academy, Szczecin

T60 - water soluble substance prepared microbiologically from pollens, showing anti-inflammatory properties [7], revealed to be active in normalizing lipid metabolism disturbances, both in animals [10] and in human beings [I1]. We therefore decided to check, whether T60 would be able to affect platelet aggregation.

Material and methods

Our experiments were performed in vitro. The platelet aggregation was tested using an Elvi 840 aggregometer with the method of Born [1]. ADP-induced aggregation was determined. 55 umol of ADP solution was added to the platelet rich plasma /i.e. containing 200-400 thousands of platelet in 1 mm'/, to obtain 2 umol final concentration of ADP in plasma. 10%, 5% and 1% solutions of T60 were used.

Results

ADP-induced platelet aggregation was diminished under the influence of T60 solutions added to platelet rich plasma.
The reduction of aggregation was observed after 5% T60 solution had been used [Fig. 1]. In control experiment, i.e. without T60, maximal aggregation amounted to 40%0; speed of aggregation was 65°, and aggregation after 2 minutes [T2] amounted to 40%. After T60 had been added as 5% solution in the volume of 50 µl, the mentioned parameters were as follows:

- maximal aggregation - 35%
- speed of aggregation - 60°,
- T2 -30%.

The platelet aggregation was abolished almost completely after 10% solution of T60 had been added, in the volume of 50 ul to the platel rich plasma [Fig. 2]. In control the parameters were as follows:

- maximal aggregation - 55%,
- speed of aggregation - 70°,
- T2 - 55%.

Discussion

Enhanced "spontaneous" aggregation has been found in diabetics and in patients, who later had myocardial infarction or thromboembolism [2, 31. Platelets of patients with diabetes, hyperlipoproteinemia and atherosclerosis quite often show an increased sensitivity to aggregating agents [4, 5, 9].
On the other hand, non-steroidal anti-inflammatory drugs are reported to have inhibitory effects on platelet aggregation[8].
Taking into account an anti-inflammatory [7], as well as lipid lowering properties of T60, the relationship between T60 and platelet aggregation could be assumed.
Inhibition of platelet aggregation by T60 has been revealed by us in vitro.
Considering concentrations of the preparation [5%, 10%] showing such an inhibition, it is to be noticed, that there are many components included: amino acids, vitamins, microelements. When applying for example 5% solution of T60, 0,4% solution of amino acids is being used.
Clinical implication of the obtained results should be taken into account[6].

Conclusion

T60 is able to inhibit platelet aggregation in vitro.

KIEROWNIK
Pracowni Farmakologii Klunicznej
Doc. dr med. habit. J. Wojcicki

KIEROWNIK
Zakladu Farmakologu PAM
Prof. dr. hab. n.med L. Samochowiec

REFERENCES

1. Born G.V.R.: Nature, 1962, 194, 927.
2. Breddin K.: Thromb. Diathes. Haemorrh., Stuttgart, Suppl. 27, 1968.
3. Breddin K., Krzywanek H.J., Ziemen M.: Acta Clin. Belg., 1975, 30,
4. Carvahlo A.C.A., Colman R.W., Lees R.S.: Circulation, 1974, 50, 570.
5. Carvahlo A.C.A., Colman R.W., Lees R.S.: N.Engl. J. 290434.
6. Fucella L.M.: Pharma col. Res. Comm., 1979, 11, 825.
7. Itah R.: J. Med. Soc. Toho Univer., 1968, 16, 1.
8. O'Brien J.R.: Lancet, 1968, 1, 894.
9. Ross R., Glomset J.A.: N. Engl. J. Med., 1976, 295,
10. L. Samochowiec, J. Wojcicki: Unpublished data.
11. J. Wojcicki, L. Samochowiec: Unpublished data.

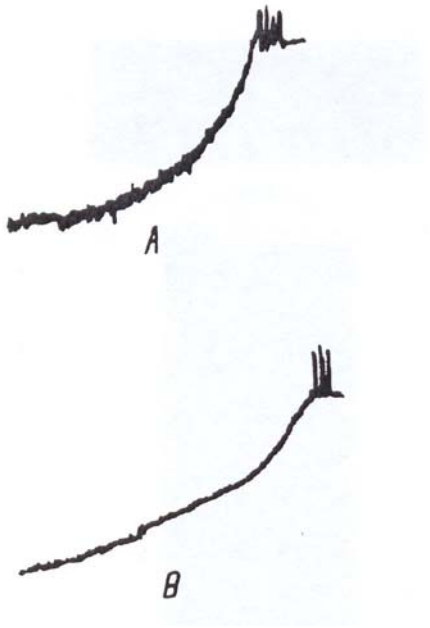

Fig. 1. ADP-induced platelet aggregation in vitro and the influence of 5% solution of T60 [B] in comparison with control [A].

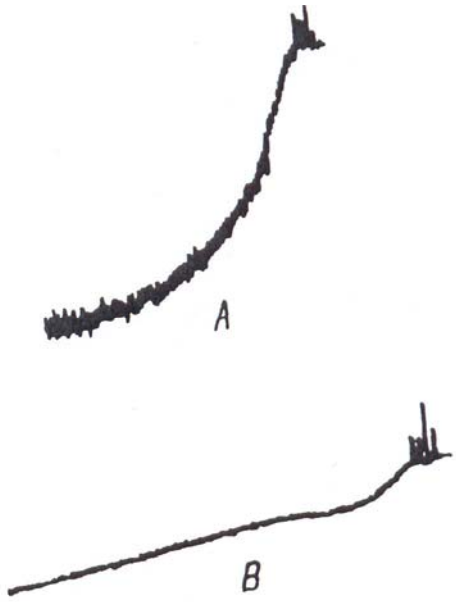

Fig. 2. ADP-induced platelet aggregation in vitro and the influence of 10% solution of T60 [B], as compared with control [A].