The results show that EOS plays a direct part in the formation of the response of changes in BP and HR to presentation of emotionally meaningful stimuli to lower primates. Nalaxone, when injected intravenously, depending on its dose may have opposite actions on the intensity of the responses of changes in BP, for it acts primarily on changes in BP developing in response to CS. This is evidently connected with its interaction, in a dose of 0.1 mg/kg, predominantly with μ-opiate receptors, and only if the dose is increased does it block δ-receptors, with which the hypertensive action of opioids is associated [1]. Attention must also be drawn to the similarity of action of morphine and naloxone in a dose of 1 mg/kg. In the writers' opinion, the reason for this is that morphine, which is an agonist of μ-receptors, may behave as an antagonist relative to endogenous substances that interact with δ-receptors.

The investigation also showed that injection of naloxone into PVH considerably facilitates the response of the CVS to emotiogenic stimuli, whereas its injection into NTS completely blocks the rise of BP in this situation. We know that PVH, which is rich in opiateergic structures [3, 4], is a key region in the formation of the autonomic response of lower primates to emotionally meaningful stimuli [5]. It can thus be concluded that the opiateergic structures of PVH and NTS participate actively in the formation of the response of BP to emotionally meaningful stimuli. Incidentally, if the effects of suppression of the responses of BP and HR to CS and US can be completely transmitted through PVH and NTS, the points of application of the effect of naloxone in doses acting chiefly on μ-receptors, and also probably of morphine, may be other brain structures or structures of the autonomic nervous system.

LITERATURE CITED

EFFECT OF RATIBOL, RETABOLIL, AND SOLASODIN ON THE BLOOD CLOTTING SYSTEM


KEY WORDS: ratibol; blood coagulation; hemostasis.

This paper describes a study of the effect of three preparations, retabolil, ratibol, and solasodin, on the blood clotting system and on fibrinolysis; the first of the three is widely used in clinical practice in various diseases, and the last two have been approved by the Pharmacological Committee of the USSR for clinical trials.

Since one side effect of retabolil is its damaging action on the liver, especially if used over a long period of time, a closer study of the behavior and interconnection between blood coagulation factors, synthesized in the liver in response to repeated injections of retabolil, would appear to be an urgent task.

Department of Physicochemical and Biological Control Methods, All-Union Research Institute of Physical Culture, Moscow. (Presented by Academician of the Academy of Medical Sciences of the USSR D. A. Kharkevich.) Translated from Byulleten' Eksperimental'noi Biologii i Meditsiny, Vol. 103, No. 4, pp. 427-430, April, 1987. Original article submitted February 26, 1986.
Fig. 1. Structural formulas of retabolil (I), ratbol (II), and solasodin (III).

Fig. 2. Thromboelastograms of rabbit blood. 1) Normal; 2, 3, 4) 24 h after peroral administration of a single dose of retabolil, ratbol, and solasodin, respectively.

Ratbol is an anabolic preparation of plant origin isolated from the root of Leusea oarxhamoides (synonym: Rhaponticum oarxhamoides), or rhapontic rhubarb. Indications for the use of ratbol are currently being worked out. It is less active as an anabolitc agent than retabolil, and is characterized more by its qualities of an adaptogen of plant origin. There is no information about the effect of ratbol on blood coagulation and hemostasis.

In several of its pharmacological properties solasodin resembles the first two preparations, but also has differences.

All three preparations possess a steroid structure, for they are all derivatives of cyclopentanephenanthrene. Solasodin has additional E and F rings (Fig. 1).

**EXPERIMENTAL METHOD**

The mechanisms of action of retabolil, ratbol, and solasodin on the blood clotting system were investigated by thromboelastography and by determination of the blood heparin tolerance, activity of the prothrombin complex by Quick’s test, activity of factors II (prothrombin), V (Ac-globulin [11]), VII (proconvertin [10]), XIII (fibrin-stabilizing factor [12]), and I (fibrinogen) and also activity of fibrinolytic enzymes, determined by two methods [6, 10]. Tolerance of the fibrin clot to streptokinase and antithrombin activity also were investigated.

The steroid compounds for testing were used in doses of 1-5 and 10 mg/kg in the case of a single dose and 1 mg/kg for administration over a period of 20 days. When a single dose of retabolil, ratbol, and solasodin was given the investigations were carried out in the initial state and after 2, 6, 12, 24, 48, and 72 h. During repeated peroral administration of the preparations samples were taken in the initial state on the 5th, 10th, 15th, and 20th days, and also 3, 10, and 15 days after discontinuation of the preparations. Tests were carried out on 214 rabbits of both sexes. Series of experiments also were undertaken in vitro, in which the preparations were added to blood or plasma 30 min before investigation in concentrations of 10 to 1090 μg/ml, and incubated. The results were subjected to statistical analysis [1].