

Platelet turnover as influenced by melatonin.

After finding that stimulation of habenular nuclei is followed by a transitory blood platelet count increase (1), many speculative inductions have been put forward and many practical applications have been carried out, among which the most important are now the profit that several primitive platelet diseases have turned out from Melatonin administration, as well as the very useful supporting role that Melatonin takes upon when antineoplastic chemicals or radiation cures are undertaken, which frequently cause a dangerous and rapid decline in blood platelet count. Melatonin increases the circulating blood platelet count through several mechanisms:

- a) inflow into the streaming blood of bordered platelets;
- b) antiadhesive and antiaggregating action on blood platelets (2);
- c) promotion of bone marrow platelet production by megacariocytes (3).

The success of Melatonin cure is depending upon the nature of the etiology, the most hardly manageable disorders being those related to hypersplenisism and to increased platelet destruction by platelet autoantibodies. Willebrand's disease, Glanzmann thrombasthenia, Bernard-Soulier's syndrome are not at all, or only moderately improved by the administration of Melatonin. Idiopathic Thrombocytopenic Purpura (ITP) is best cured by oral or parenteral Melatonin, by dosages of 1-2 mg/day. Purpuric signs fade away quickly enough, even though the blood platelet count subsists at relatively low levels. The ITP can be definitively healed by Melatonin particularly in young male and female subjects. Neither physical, nor psychic, nor growth troubles have been ever detected following Melatonin treatment, even when the treatment is protracted for 2-3 years, or longer. In some cases platelet blood count raises within a few days from the beginning of Melatonin administration; in most cases, however, hemorrhagic disorders disappear promptly, while blood platelet count reaches its normal levels within several months or some years of cure with Melatonin. Melatonin accelerates and promotes platelet production even *in vitro* (3); Melatonin seems indeed to be rapidly metabolized by megacariocytes, unless sphingosin, or sphingosin derivatives are added to the suspension medium. Several of the foregoing events can be best interpreted, when the action of Melatonin, even on blood vessel endothelia, is more clearly known.

- 1) DI BELLA L., M.T. ROSSI and G. SCALERA, *Progr. Brain Res.*, 1979, **52**, 475-478
- 2) SCALERA G., L. DI BELLA, M.T. ROSSI and G. SCALERA, *Boll. Soc. It. Biol. Sper.*, 1979, **55**, Abstr. 114.
- 3) DI BELLA L., L. GUALANO, M.T. ROSSI and G. SCALERA, *Boll. Soc. It. Biol. Sper.*, 1979, **55**, 389-393.