

type of drug containing meal, but no drug was added (placebo), though, they were also deprived from food one and half hour prior to the time of treatment as other groups. Group II, III, IV, V and VI were given dietary melatonin as a daily dose of 125, 250, 500, 750 and 1000 µg/kg body weight, in sequence, for 30 successive days. The drug used in this work was N-Acetyl-5-methoxytryptamine (melatonin) tablets, from Nature's Bounty INC, Bohemia NY 11716, and USA. After the last day of treatment, all animals were killed by dissection under effect of diethyl ether. The whole left lung was removed, and processed for paraffin section, using Bouin's solution for fixation and (Haematoxylin & Eosin) for staining. Then 5 serial sections of 5 µm thickness were studied ⁽⁶⁾.

Histological study was done both as descriptive and morphometric by light microscope. The morphometric data were estimated by using objective micrometer used on a light microscope; by which a distance of 10µm could be calculated, so the average widest diameter of pulmonary alveolar macrophages, as well as the diameter of their nuclei, was estimated. All the values were taken as mean ± SD of 8 rats. The significance of difference between each of treated groups and its control was evaluated by student – t – test ⁽⁷⁾.

Results

The morphometric results:

In all of the treated groups; there were significant increase ($p < 0.05$) both in the average widest diameter of the macrophages and the average diameter of their nuclei (Table1).

The descriptive results:

Unusual types of cells were appeared; among which was the large type of macrophages seen mostly in group II and

III. They were large polygonal, with darkly stained cytoplasm containing many vesicles, vacuoles and particles. Their nucleus was pale basophilic and eccentric. They were frequently located near the blood vessels in comparison with the control (Figure1 and 2).

The second type of cells seen was the epithelioid cells; they were large type of macrophages with voluminous pink-stained cytoplasm and pale basophilic, eccentric nucleus. They were viewed mostly in the group IV, V and VI (Figure 3).

Multinucleated giant cells were regarded to represent the third type of unusual cells. They were noticed only in animals received doses of 750 and 1000µg/kg. Those cells were very large, irregular in shape, with pale acidophilic cytoplasm filled with granules, vesicles and debris (Figure 4).

The vascularity of the pulmonary tissues as a whole was positively increased with the stepping up doses of melatonin, till the last dose 1000µg/kg; where areas of hemorrhages appeared (Figure5).