

## **Discussion**

The average widest diameter of pulmonary alveolar macrophages, as well as the diameter of their nuclei was significantly increased by melatonin in the instant work. The explanation for this might be highlighted by the fact that those parameters principally follow the macrophage function status<sup>(8, 9)</sup>. The physiological condition of the pulmonary alveolar macrophages is determined basically by their histological appearance; so they are considered to be actively functioning whenever their size are larger with paler and larger nuclei, whereas they are said to be insufficient in case they are being smaller with darker relatively smaller nuclei<sup>(4, 5, 10)</sup>. Hence in the groups treated with 125 and 250µg/kg dose; the unusually large macrophages reflected an actively functioning cells, whereas, the epithelioid cells might represent the over stimulating view, since they are well documented to be seen only in hyper stimulating situations<sup>(2, 3, 5, 10)</sup>.

The other interestingly existed cells in the ongoing study were the multinucleated giant cells; which appeared to highlight a very toxic condition, because those exceptionally rare cells are formed when epithelioid cells coalesce to make huge multinucleated masses termed the foreign body giant cells; that regarded as a characteristic finding consequently seen only in pathological and/or toxic cases. This could be due to the concept that melatonin is a well designed to exert its physiologic action in a dose – dependent manner, being stimulating at normal therapeutic level and harmful at its overabundance<sup>(11, 12)</sup>. Those findings might indicate the enhancement in the function of macrophages, as a consequence of exogenous melatonin on those cells, affecting them directly

through melatonin receptors found in all tissues and cells<sup>(13, 14)</sup>, and/or indirectly through the well known cytokines, namely; granulocyte – macrophage colony stimulating factor (GM – CSF), which is secreted by the macrophages, endothelium and T lymphocytes; activating these cells, and/or through macrophage colony stimulating factor (M- CSF), since the melatonin is the hub director of all types of immunity<sup>(2, 3, 15, 16)</sup>.

The significant effect on average diameter of nuclei in all of treated groups; may lead to the impression that melatonin could affect most of the cell activities, since the nucleus is the archive of the cell<sup>(4,5)</sup>.

The dilated blood vessels watched in the forgoing study; could be due to the fact, that melatonin has a well known vasodilator action<sup>(17)</sup>. Those results could be explained by the fact; that melatonin has damaging effects only when it is administered in excess<sup>(11, 12)</sup>.

The results of the instant work went with the concept that melatonin administration within a therapeutic dose might be helpful in the amelioration of the immunity status<sup>(18, 19, 20)</sup>.

## **References**

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