ULTRASTRUCTURAL LESIONS OF THE LIVER IN EXPERIMENTAL OCHRATOXICOSIS OF BROILER CHICKENS

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Keywords: ochratoxicosis, chickens, liver, histology, electronmicroscopy

SUMMARY

Ochratoxin A (OTA) is a nephrotoxic/carcinogenic mycotoxin, produced by several Aspergillus- and Penicillium-strains. It also have a hepatotoxic and immunosuppressive effect. Investigations were made on an experimental ochratoxicosis pattern, on 60 chickens, (males and females), randomly grouped in four groups: E1 receiving 1mg/kg ochratoxin A, E2- 9 mg/kg, E3- 20 mg/kg and control group (C), receiving only the solvent (vegetal oil). The micotoxin was given orally, in vegetal oil suspension, each day, from 1st to 21st day of life.

Ultrastructural changes of hepatocytes were more evident at 21st day of the experiment in E1 group, but both at 7th, 14th and 21st day in E2 and E3 group. Into the hepatocytes, increase of lipids vacuolae, fragmentation and dilatation of smooth endoplasmic reticulum, decrease of number of ribosomes attached to endoplasmic reticulum, increase of number of free ribosomes into the cytoplasm, vacuolar lipidic inclusions, balloonised mitochondria with smaller cristae and lipidic drops into it, and loose of membrane integrity were observed. Glycogenic granulae into the hepatocytes were also observed. The nuclei of the hepatocytes contained large lipidic vacuolae between the two layers of the nuclear membrane both at 14th and at 21st day of the experiment in E2 group. In E3 group the nuclei have irregular shape, containing electronodense inclusions and into the cytoplasm, mitochondria were totally desintegrated and many myeline-like figures were observed. In control group the bile canaliculi showed numerous expansions of the hepatocytes. In experimental groups both the number and the high of microvili were reduced.

Kozaczynski W., 1994 demonstrated that hepatocytes degeneration is induced by ochratoxins by inhibition of protein kinase activity, interfering firstly the AMPc protein kinase dependent. The glycogenolytic activty is reduced but glyconeogenesis increase.

The loose of mitochondria membrane and other organelles integrity can be done by a competitive inhibition of protein synthesis by OA and unpaired lipoproteic subsequences in the cell.

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1 Researches financed by grant CEEX Neoprev 147/2006