Weaning and the introduction to solid food was accompanied by a gradual increase of the IFNy / IL-10 ratio in the duodenum of BBdp, BBc and WF rats up to 70 days of age. BBdp pups at 10-days of age before weaning exhibited significantly higer levels of IFNy, IFNy / IL-10 ratio and CCI.2 in the duodenum as compared to BBc or WF rats, The Th1 milieu in the BBdp gut might lead to the impairment of mucosal barrier function and to the development of inflammation, and thus may contribute to the establishment of an inappropriate immune response to dietary antigens and promote the development of diabetes in BB rats later in life. We therefore think that in the gut of individuals predisposed to the development of TIDM there is an early pro-inflammatory process that facilitates impairment of intestinal barrier functions, the appearance of intestinal inflammation, the establishment of inappropriate immune reactions to food antigens and break of oral tolerance mechanisms later in life.

THE CORRELATION BETWEEN IL-1β/IL-10 RATIO AND TOTAL COLLAGEN CONTENT IN THE INJURED SKIN AREA OF GUINEA PIGS UNDER EXPERIMENTAL BURNS OF DIFFERENT ORIGIN

Polikarpova H.V., PhD
Kharkiv National Medical University, Kharkiv, Ukraine

Burns are very frequent type of trauma to be characterized by the long and severe course. Despite the large number of studies devoted to different types of burns there are no comparative studies of their course so far that could be clarified as features in the mechanisms of their development and healing.

The aim of research was to investigate the correlation between IL-1β/IL-10 ratio and total collagen content in the damaged skin area of guinea pigs under experimental thermal, chemical and radial burns.

The study was carried out on 147 white four-month-male guinea pigs weighing 470–600 g, were kept in standard vivarium conditions. Thermal burn was caused by contact way, chemical burn was caused by application of 20% solution of hydrochloric acid. Radial burn was caused by X-ray influence at the exposition dose 60 Gr. In should be noted that this model was developed especially for local radial injuries cause without radial disease occurrence. The study of collagen content was carried out by the histochemical method. Determination of the IL-1β and IL-10 content in homogenates of the affected skin area was carried out by ELISA with *DRG* (Germany) kits. All parameters were investigated within an hour, at 1, 3, 5, 7 and 10 days after the application of all burns, and in the case of radial burn - even at 21 and 35 days. The statistical analysis of the results was carried out by the *Statistica-13* software (StatSoft, USA).

The results of investigation showed the significant negative correlation between the ratio of IL-1β / IL-10 and the total collagen content in the affected skin area under all investigated types of burns: $R = -0,69 \pm 0,13$ at the thermal burn, $R = -0,86 \pm 0,16$ at the chemical burn and $R = -0,48 \pm 0,16$ at the radial burn, $p \leq 0,05$. However, under chemical burns the degree of dependence of the

studied parameters was greater than under other types. IL-1β belongs to the early respond cytokines which starts the inflammatory reaction and increase other proinflammatory cytokine production in the affected area. IL-10 is known to be the important anti-inflammatory factor. The IL-1β/IL-10 ratio is a parameter used to display the proinflammatory and anti-inflammatory balance in the injured area. One hour after the thermal and chemical influences this parameter sharply increases, which corresponds to the minimal value of the total collagen level in the affected skin area. Radial burns showed a gradual increase in the ratio of IL-1β/IL-10 in the affected area of the skin, indicating the chronic course of the inflammatory process.

The investigated parameters under thermal and chemical burn of the skin to be characterized by acute inflammatory reaction and self-healing show the similar value and prove the physiological wound course. The radial burn shows the different dynamics and characterized by chronic inflammatory process development and inability to self-repair.

INFLUENCE OF MENOPAUSE ON LEPTIN CONCENTRATIONS IN WOMEN WITH METABOLIC SYNDROME

Doctor of Medical Sciences, professor Pytetska N.
Kharkiv National Medical University, Kharkiv, Ukraine

Background. It is well-known that leptin is the regulator of fat metabolism in human organism. But the menopause role in leptinemia development in women with metabolic syndrome (MS) remains unclear.

Aim: to determine leptin concentrations in dependance on hormone status in women with MS.

Materials and methods: 150 patients with 3 to 5 MS signs according to IDF guidelines (2005) were observed and included into 3 groups. The 1st group consisted of 50 premenopausal women, the 2nd group – of 83 women being in physiologic menopause, 17 women with surgical menopause (after panhysterectomy) were included into the 3rd group. All the patients underwent the Glucose Tolerance Test with identification of glucose and insulin concentrations, calculation of HOMA index, determination of atherogenic markers of lipid metabolism (triglycerids (TG), low density lipoproteins, high density lipoproteins) and leptin, progesterone levels.

Results: it was determined that progesterone levels in women with panhysterectomy (5,45±0,80 nmol/l) were lower than those in women with physiologic menopause (7,22±0,76 nmol/l, $p>0,05$) and were significantly lower compared to women in premenopause (7,68±0,74 nmol/l, $p<0,05$). Progestagen defficiency was associated with glucose and lipid metabolism disorders in women of the 2nd group and especially the 3rd one in comparison with the 1st group. Basal insulin concentration, triglycerids, low density lipoprotein ranges were significantly higher and high density lipoprotein levels were significantly lower in the 3rd group compared to the 1st group ($p<0,01$, $p<0,01$, $p<0,05$,