IS-101  Serum Levels and Expressions of Inhibin A and Inhibin B in the Ovaries of Perimenopausal Women

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[Objective] In order to understand the physiologic effects and secretion pattern of inhibin A and inhibin B during menstrual cycle and menopausal transition, inhibin A and inhibin B levels were measured.

[Methods] Inhibin A and B levels were measured in 320 normal reproductive women, 60 from perimenopausal women, and 20 menopausal women by ELISA. And we examined the immunohistochemical staining of the a, B, and B subunits of inhibin in the ovarian tissues.

[Results] In the perimenopausal group, the mean inhibin A serum concentration was 6.68±0.53 pg/ml during proliferative phase and 21.78±3.61 pg/ml during secretory phase, which were significantly lower than that of the same phase in the normal reproductive women (p<0.05). In the menopausal group, both inhibin A and inhibin B were not detected. In the normal reproductive group, we observed strong immunostaining for the a subunit in the granulosa cells, theca cells of the ovarian follicle, and corpus luteum, B subunit, in the corpus luteum, and B subunit in the primary follicle, in the granulosa and theca cells of the growing follicle, mature follicle. In the perimenopausal women, immunostaining for inhibin subunits were observed in the same pattern as that of the normal reproductive women, but weaker. In the menopausal women, none of the immunostaining of the inhibin subunits were observed.

[Conclusion] It is concluded that inhibin A is associated with the luteal function and inhibin B, the follicular function. The secretion of inhibin decreased rapidly in the perimenopausal transition period, was not detected in the menopausal period. It suggests that the inhibin A and inhibin B are good candidates as markers for perimenopausal transition.

Keywords: inhibin A, inhibin B, granulosa cell, ELISA, immunohistochemical staining

IS-102  The free radical scavenger MCI-186, reduces lipid peroxidation in hypoxic-ischemic brain damage of the neonatal rat

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[Objective] Effect of free radical scavenger, 3-methyl-1-phenyl-2-pyrazolin-5 one (MCI-186), on perinatal hypoxic-ischemic brain injury was studied.

[Methods] Seven-day-old Wistar rats (n=48) were subjected to modified Levine's procedure (left carotid artery ligation with 2hr 8% hypoxia), then given either vehicle or MCI-186 at the dosage of 9mg/kg intraperitoneally. Thiobarbituric Acid Reactive substances (TBARS) was used as an index of lipid peroxidation. Brain hemispheres were homogenized. TBARS was measured at 2(n=12), 5(n=12), 24(n=12) and 48(n=12) hr after injection by spectrophotometry. Data are presented as mean ± SEM.

[Results] The TBARS level (µmol/mg brain tissue) of the ligated side (vehicle vs MCI-186) was 55.3±14.1 vs 35.4±5.2 at 2hr (ns, unpaired t-test), 227.7±67.2 vs 203.4±8.4 at 5hr (p<0.001), 238.4±75.4 vs 55.0±9.8 at 24hr (p<0.001), and 103.8±23.8 vs 97.8±12.1 at 48hr (ns). Thus, MCI-186 significantly reduced TBARS levels at 5 and 24 hr after injection.

[Conclusion] This result shows that MCI-186 has a free radical scavenging effect on hypoxic-ischemic brain damage in neonatal rat model.

IS-103  Lipopolysaccharide administration induces brain damage after intermittent hypoxia in the newborn rat

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[Objective] We investigated the effects of lipopolysaccharide (LPS) on neonatal rat brain damage after intermittent hypoxia.

[Methods] On postnatal day 7, Wistar rats were separated into 3 groups: 1) LPS administration with hypoxia-ischemia (i.e., 1mg/kg, n=46, LPS/HI) 2) saline administration with hypoxia-ischemia (n=42, saline/HI) and 3) LPS administration alone (n=16, LPS alone). At 4 hours after injection rats from LPS/HI and saline/HI group were exposed to unilateral carotid artery ligation followed by repeating a 10 minutes of experimental period (2min of hypoxia and 8min of recovery) for 10 times at 33°C. All rats were sacrificed after 7 days and the brains were histologically studied by HE staining.

[Results] Mortality rate during the experiment was not different among the groups. Neuronal loss was detected in the cerebral cortex and the hippocampus. Animals with neuronal loss were significantly increased in LPS/HI group (21%), compared with saline/HI group (0%, P<0.003). [Conclusion] LPS administration worsened hypoxic-ischemic brain damage in the newborn rats exposed to intermittent hypoxia. It may give some clinical relevances that repetitive uterine contractions would affect neonatal neurological outcomes with intrauterine infection.