Neuroprotective effects of melatonin upon the offspring cerebellar cortex in the rat model of BCNU-induced cortical dysplasia

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Cortical dysplasia is a malformation characterized by defects in proliferation, migration and maturation. This study was designed to evaluate the alterations in offspring rat cerebellum induced by maternal exposure to BCNU and to investigate the effects of exogenous melatonin upon cerebellar BCNU-induced cortical dysplasia, using histological and biochemical analyzes. Pregnant Wistar rats were assigned to five groups: intact-control, saline-control, melatonin-treated, BCNU-exposed and BCNU-exposed plus melatonin. Rats were exposed to BCNU on embryonic day 15 and melatonin was given every day until delivery. Immuno/histochemistry and electron microscopy were carried out on the cerebellum, and cerebellar tissue malondialdehyde (MDA) and superoxide dismutase (SOD) levels were determined. Histopathologically, normal developmental findings were observed in the cerebellae from the control groups. The maturation was delayed and the findings consistent with the early embryonic development were noted in BCNU-exposed cortical dysplasia group. There was a marked increase in the number of TUNEL (+) and Nestin (+) cells in BCNU-exposed group, but a decreased immunoreactivity to GFAP, synaptophysin and TGF was observed, indicating a delayed maturation, and melatonin significantly reversed these changes. Tissue MDA levels in BCNU-exposed group were higher than those in the control groups and melatonin+BCNU group (P<0.01), while there were no significant differences in the tissue SOD levels. These data suggest that exposure to BCNU on pregnant rats leads to delayed maturation of offspring cerebellum and melatonin protects the cerebellum against the effects of BCNU. Further studies are warranted to evaluate the mechanism of neuroprotective effect of melatonin administration during pregnancy on developing rat cerebellum.

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BDNF (Brain-Derived Neurotrophic Factor) and first trimester of pregnancy in humans

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Growing and renewing interest is been arising in the field of neurotrophins, in particular BDNF, in the last five years. However, there are no studies available in the literature nowadays regarding the possible interactions between the complex hormonal background of human pregnancy and this neurotrophin. On these bases, we decided to study the variations of its plasma levels in the first trimester of pregnancy in a group of healthy women (n=80), comparing them with those of a group of an healthy non pregnant control (n=73). Surprisingly we observed higher level of plasma levels of BDNF in control group rather than in group in pregnant women at first trimester (control: 836.397±17.7957 vs. pregnant at first trimester: 692.243±42.2254; p<0.01), with no differences in terms of BMI and age.

However, on the basis of the paucity of the data present in literature and of those obtained in our protocol study, we can not establish which is the main mechanism by which BDNF plasma level seems to be reduced in the first trimester of human pregnancy.

We can hypotize that this reduction could be related to some clinical aspects of neurovegetative disorders observed in first trimester and that BDNF could have a role in the physiological development of pregnancy. For this, more studies are needed to investigate these and other unanswered questions about BDNF and human pregnancy.

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**Wnt signalling key effectors differ in embryo brain following intrauterine hypoxia-ischemia brain damage and reperfusion**

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Objective: Wnt-signalling pathway has pivotal roles during the development of embryo brain. Recent studies have implicated a role for the canonical Wnt/beta-catenin signal transduction in rat hypoxic-ischemia preconditioned myocardium. This study investigated the relationship between Wnt-signalling pathway and intrauterine hypoxia-ischemia brain damage (HIBD).

Methods: We used a transient intrauterine model as embryo HIBD in gestational rat (17 days). The rats were randomly divided into two groups. For transient intrauterine ischemia group, the gestational rat's bilateral uterine arteries were occluded for 30 min, followed by reperfusion. For sham operation group, animals were subjected to the same surgical procedures without occlusion. Embryo brain samples were collected at 24, 48, and 72 h during reperfusion. Nissl staining and Caspase-3 immunohistochemical staining were performed to observe neuronal damages at hippocampus in each group. Western blot analysis was used to evaluate the expression levels of Dvl2, GSK-3beta, beta-catenin and LEF1.

Results: Results of Nissl staining and Caspase-3 immunohistochemical staining confirmed that transient intrauterine hypoxia-ischemia significantly induced neuronal apoptosis. The difference of beta-catenin expression level was no statistical significance between two groups. However, the level of Dvl2 and LEF1 both decreased while the level of GSK-3beta increased in transient intrauterine ischemia group.

Conclusion: This study provides preliminary evidence that the Wnt signalling may be repressed in intrauterine hypoxia-ischemia brain damage without the canonical Wnt/beta-catenin pathway, suggesting that the further research of the non-canonical Wnt/Ca2+ or Wnt/polarity signalling may contribute to a better understanding of Wnt signalling's effect on HIBD.

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Investigation of maternal melatonin effect on the hippocampal formation of newborn rat model of intrauterine cortical dysplasia

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Cortical dysplasia is a cortical malformation Resulting from any developmental defect during different periods of development. This study aims to contribute to the scientific literature by investigating the cerebellar histopathological alterations in neonates with cortical dysplasia due to the prenatal exposure to carmustine and the possible effects of prophylaxis with melatonin, a neuroprotective agent. Wistar albino female rats (200-220g) were randomly divided into five experimental groups; intact-control, sham-operated, exogeneous melatonin-treated, carmustine-treated and Carmustine+Melatonin-treated. Light microscopy, immunohistochemistry were carried out on the newborn hippocampus. Histopathology of hippocampus from the control, sham-operated and melatonin-treated groups showed continuity of migration and maturation which is a patognomonic sign of the newborn hippocampus. Carmustine group had cortical dysplasia and carmustine+melatoniine group had brain morphology close to control group. However, hippocampal cortex from the newborn rats of cortical dysplasia group showed the histology of early embrionic hippocampal formation. Furthermore, immunohistoc hemically the increased apoptotic cell numbers and Nestin (+) cell numbers and the decreased positive immunoreactivity to GFAP, synaptophysin and TGF- β1 in the carmustine-treated group revealed a significant delay in brain maturation. It has been concluded that for women who need an alkylating agent treatment during their pregnancy careful ultrasound evaluation of fetal brain development is necessary and medical abortus indication must be kept in mind. Additional trials are required to evaluate the positive effects of prophylactic melatonin administration together with alkylating agent therapy during pregnancy.

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Senescence of fetal endothelial progenitor cells in pregnancies complicated by idiopathic fetal growth restriction

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Objective: The aim of this study was to investigate the number and functional ability of fetal endothelial progenitor cells in pregnancies complicated by idiopathic fetal growth restriction (FGR).

Study Design: Fetal endothelial progenitor cells were isolated, and counted from 15 women with FGR and 30 normal women. Colony-forming assay and differentiation time assay were performed to detect functional activity of the cells. To assess cellular senescence, senescence-associated β-galactosidase staining was performed for endothelial progenitor cells. For quantitative analyzes of telomerase activity, the telomeric repeat amplification protocol (TRAP) assay was performed.

Results: Compared with normal pregnancy, the number of endothelial progenitor cells was significantly lower, differentiation time from endothelial progenitor cell into outgrowing cell was longer, and the number of colonies after differentiation was smaller in FGR (p<.001), respectively. The intensity of senescence-associated β-galactosidase staining was higher in FGR (p<.001). The activity of telomerase was significantly lower in FGR (p<.001).

Conclusion: The number and functional ability of fetal endothelial progenitor cells from FGR were significantly decreased and they were more senescent compared with those of normal pregnancy.

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Differential expression of cellular prion protein in the placentas of women with normal and preeclamptic pregnancies

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Objective: The aim of our study was to determine the difference of cellular prion protein (PrP\textsuperscript{C}) expression in the placentas of women with normal and preeclamptic pregnancies.

Methods: Placental tissues from 15 women with severe pre-eclampsia and 17 gestational age-matched normotensive women were collected at the time of their caesarean section. Quantitative reverse transcription polymerase chain reaction (RT-PCR), western blot analysis, and immunohistochemical staining were performed for mRNA expression, quantification, and tissue localization of PrP\textsuperscript{C} in each placenta.

Results: Compared with the normal placentas, PrP\textsuperscript{C} showed higher mRNA and protein expression levels in preeclamptic placenta (each, p<0.001). In immunohistochemical staining, PrP\textsuperscript{C} was present in the syncytiotrophoblast, cytotrophoblast, endothelial cell, and Hofbauer cell of villi of all placentas. These cells in normal placenta were week positive for PrP\textsuperscript{C}, and there was no difference of expression between each cell. In preeclamptic placenta, the PrP\textsuperscript{C} immunoreactivity of syncytiotrophoblast was higher than the other cells. When the PrP\textsuperscript{C} immunoreactivity in each cell was compared between normal and preeclamptic placentas, the syncytiotrophoblast was higher positive in preeclamptic placenta (p<0.001), but the other cells had no difference.

Conclusions: The increased expression of PrP\textsuperscript{C} in preeclamptic placenta may be a compensatory phenomenon for preeclampsia-related conditions. Furthermore, this change in preeclamptic pregnancy may give an explanation for placental response to overcome the preeclamptic conditions.

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Mutation analysis of the heme-oxygenase-1 gene in pre-eclampsia patients with a family history of hypertension in pregnancy

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Heme oxygenase (HO) is the rate-limiting enzyme in the degradation of heme to biliverdin. It is important for placental angiogenesis and the utero-placental hemodynamic control. Recently, it was demonstrated that HO-1 reduces the release of soluble Endoglin (sEng) and soluble Flt-1 (sFlt-1) which are both elevated in the serum of women with pre-eclampsia, from endothelial cells and pre-clamptic placental villous explants. A possible regulatory function of HO-1 in the pathogenesis of pre-eclampsia can therefore be assumed. As pre-eclamptic disorders have a clear genetic component we performed a mutation analysis of the HO-1 gene in pre-eclampsia patients with a family history of hypertension in pregnancy. In 38 index patients, the promoter region, the whole coding region and the intron/exon boundaries of the HO-1 gene were screened for mutations by direct sequencing. No pathogenic variants were detected but we observed seven single nucleotide polymorphisms. The polymorphism -156T>C had not been described before. Like the well described (GT)n dinucleotide repeat and the SNP –413A>T this novel polymorphism is located in the promoter region of the HO-1 gene. The nucleotide exchange 99G>C was the only variant observed in the coding region leading to an amino acid exchange of Histidine for Aspartate. The other polymorphisms we observed were intronic. Allelic frequencies in pre-eclampsia patients were not significantly different compared to healthy controls for any of the polymorphisms. Based on our Results we conclude that variants in the HO-1 gene do not play a significant role in the pathogenesis of pre-eclampsia.

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Overperfusion-related retinal findings in pre-eclampsia: New insights regarding the pathophysiology of endothelial damage

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Background: Although retinal vasospasm is historically considered the main retinal finding in preeclampsia, a wide range of retinal findings is recognized in this condition. They are originated from choroid, which presents high susceptibility of overperfusion-related endothelial damage. Focal chroidal infarcts (FCI), characterized ophthalmoscopically by subretinal white spots and retinal elevation, are especially relevant in preeclampsia. The purpose of this study was to establish the main predictors of FCI.

Methods: Ninety-eight women with severe preeclampsia were submitted to retinographic documentation. An orbital color Doppler with a 7.5 MHz linear transducer provided ophthalmic artery resistive index (OARI) and ophthalmic artery mean velocity (OAMV). The association between retinal findings with OARI, OAMV, mean blood pressure at admission (MBPA), mean blood pressure elevation (MBPE), LDH and 24 hour proteinuria were obtained by fitted binary logistic models, established with variables categorized according to cutoff points obtained from ROC curves.

Results: FCI occurred in 46 (47%) women. Those with and without FCI presented significant differences in OARI (p<0.001), OAMV (p<0.001), MBPA (p<0.001), MBPE (p<0.001), LDH (p<0.001), and 24 hour proteinuria (p=0.005). The larger area under ROC curve was obtained with OARI (0.82±0.03), with the cutoff point of 0.56. The multivariate logistic regression model was obtained with OARI and MBPA, with odds ratio estimates of 7.10 and 5.29.

Conclusion: OARI is the major predictor of FCI in preeclampsia. Data support FCI as an overperfusion-related retinal finding secondary to endothelial damage in preeclampsia.

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Excess level of soluble fms-tyrosine kinase (sFlt-1) may be associated with pre-eclampsia in pregnancy with abnormal uterine artery Doppler during second trimester

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Objective: Preeclampsia (PE) has been proposed to be a condition characterized by an anti-angiogenic state, initiated by placental hypoxia. This cohort study aims to analyze the plasma concentration of sFlt-1 from pregnant women who present bilateral notching in uterine arteries Doppler in their second trimester. Methods: Thirty-seven non gemelar pregnant women at second trimester were selected and followed until delivery. Abnormal uterine arteries Doppler was defined as persistent bilateral notching after 26 weeks of gestational age. In women presenting this criteria, sFlt-1 concentration were determined with Quantikine (R&D Systems). PE was diagnosed based on gestational hypertension and proteinuria, according to NHBPEP Report (2000).

Results: PE occurred in 32.4% (12/37) pregnant women. Mean arterial pressure in these women was 123.3mmhg +/- 4.1. At delivery, mean gestational age was 37.6 +/- 2.9 weeks. Among women who developed preeclampsia, 45% (9/12) had bilateral notching in uterine arteries. Pregnant women who developed PE presented median sFlt-1 higher than with normal pregnancy (400.5pg/ml and 250.6pg/ml, respectively, p=0.01).

Conclusion: Pregnant women with abnormal placental blood flow could be better followed with the inclusion of sFlt-1 measurement. This biochemical marker appears to be a promissory predictor of preeclampsia.

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Spatio-temporal expression patterns of progranulin in the human placenta and control of its regulation by steroid hormones

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Progranulin (PGRN, syn. acrogranin, PCDGF, granulin-epithelin precursor) is a pleiotropic glycoprotein that stimulates cell migration and proliferation, shows anti-inflammatory activities in wound healing processes and is involved in developmental events like male-specific brain differentiation. The expression of PGRN is partially regulated by steroid hormones (e.g. in MCF-7 breast cancer cells). In-vitro studies on mice revealed a strong expression of PGRN in trophectodermal cells and demonstrated stimulating effects on blastocyst hatching and cavitation as well as outgrowth and proliferation of trophoblast cells. Assuming a functional relevance of progranulin also in human implantation processes we studied the protein expression patterns in first and third trimester human placenta specimens. Strongest expression was seen in the trophoblast cells of the first trimester. Levels clearly decreased in term placenta tissue. Moreover amniotic fluid of second trimester contains high levels of PGRN. We further used primary cultures of human trophoblast cells for investigating the influence of steroid hormones on PGRN expression. Therefore we analyzed the cellular mRNA expression as well as the protein levels of supernatants. All tested hormones (17-β estradiol, progesterone, prednisolone, dexamethasone) did not show any influence on progranulin synthesis.

In conclusion we demonstrated for the first time a strong PGRN expression also in human trophoblast cells of the first trimester. Further, progranulin is secreted by cultured throphoblast cells, but it remains actually unclear how its expression is regulated. Our Results strongly suggest an impact of progranulin also in human placentation, but further studies regarding the investigation of functional mechanisms are needed.

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Phenylephrine (PE) sensitivity is not affected by cyclooxygenase (COX) and nitric oxide (NO) pathways in mesenteric veins of pregnant rats

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Increased venous return is thought to be important in the cardiovascular adaptation to pregnancy. The purpose of this study was to test whether the blunted alpha1-adrenergic sensitivity in mesenteric veins of pregnant rats can be explained by interaction with COX pathway and/or NO synthase? Mesenteric veins from cycling (NP, n=27) and age matched late pregnant (LP, n=24, day 19-21) Sprague-Dawley rats were dissected and cannulated in a specialized venograph system. By using pressurized (6mmHg) venous segments from anatomically similar locations, lumen diameter was measured continously with a video-electronic system. Venous endothelium was removed mechanically by using first a human and then a horse hair. Complete endothelial removal was confirmed by electron microscopy. The veins from LP rats were less sensitive to PE than NP controls (EC50: 109nM vs. 31.4 nM, p<0.05). Meclofenamate (MF), which blocks conversion of arachidonic acid, and N-nitro--L-arginine methyl ester (L-NAME), which inhibits endothelium-dependent NO synthase, had both no effect on the PE-venoconstrictor response of the LP and NP groups (EC50: 119nM vs. 42.6nM and 83.5nM vs. 46.2nM, n. s.). Compared to the effects of L-NAME, venous PE-sensitivity was mimicked by endothelial removal (EC50: 105nM v. s. 51.2nM, n. s.). These data indicate that under these conditions: (1) Pregnancy decreases the venoconstrictor response to PE.(2) This decreased venous alpha1-adrenergic sensitivity is not mediated by products of COX pathway and NO synthase.(3) The effects of L-NAME and endothelial removal are the same.

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Usage of antithyroid peroxidase antibody (anti-TPO Ab) for assessment of subclinical hypothyroidism in first trimester of pregnancy


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Background: Hypothyroidism during pregnancy has been found in 2.5% of all normal pregnancies and untreated hypothyroidism may lead to miscarriage and preterm delivery. In clinical practice hypothyroidism is characterized by a high level of thyroid stimulating hormone (TSH) even with no overt thyroid dysfunction. The aim of this study was to evaluate pregnant women with subclinical hypothyroidism in first trimester.

Methods: Serum Fasting Blood Sugar (FBS), Total Thyroxin (T4), Anti- TPO antibody and Complete Blood Cells (CBC) were determined in 92 pregnant women who recruited from the Razi Pathobiology Laboratory, Karaj, Iran during 2008. The including criteria was age before 40 years, no history of previous thyroid disease and diabetes mellitus in first trimester of pregnancy. Hypothyroidism was defined as TSH more than 5.1mIU/L and positive anti-TPO antibody was more than 20IU/ L.

Results: Average age was 27.7±4.2 years; gestation age was 14.7±1.5 weeks; an elevated TSH with normal T4 was found in 4.5% on the pregnant women. Anti-TPO antibody was positive in 16.4% on the pregnant women.

Conclusion: Our data suggest that anti-TPO antibody may be better marker than TSH to identify pregnant women with subclinical hypothyroidism during first trimester and more studies are needed.

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Thyroid function study of women during pregnancy

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Aim: To study and document the changes in the function of the thyroid gland during pregnancy, given the fact that due to estrogen production the thyroxine binding globulin of the liver increases. As a result, the amount of bound hormones increases and the amount of free thyroxine decreases, leading to hypersecretion of TSH and thyroid gland hyperplasia.

Material – Method: Material for our study were 685 pregnant women, in whom we determined immunoenzymically, using the chemiluminescence method, the T3, T4, FT3, FT4 and TSH hormones.

Results: a) In 547 women (79.85%) no disorder was found, b) In 127 women (18.54%) high values of T3 and T4 were recorded with normal levels of FT3, FT4 and TSH. In a follow-up test (six months after labor) T3 and T4 values were restored fully to normal levels. c) In 11 women (1.61%) high values of T3, T4, FT3, FT4 were recorded, with low TSH value. Their hyperthyroidism was confirmed and treated with medication, by administering the minimum possible dose, while the thyroid function tests of the neonates after parturition came out normal.

Conclusions: Therefore, it is proven that hyperthyroidism is not unlikely during pregnancy, either hyperthyroidism can manifest during pregnancy, or a woman already suffering from hyperthyroidism can become pregnant. Certainly, special attention is needed in the diagnosis of these cases, considering the fact that hyperthyroidism symptoms such as tachycardia, thermophobia etc. are attributed to pregnancy, while a possible weight loss is covered by the weight gained during pregnancy.

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Reactive oxygen substances (ROS) and total antioxidant defences (TAD) on cord-blood of full-term healthy babies

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Introduction: ROS are implicated in many severe neonatal diseases as bronchopulmonary dysplasia, necrotizing enterocolitis, intraventricular haemorrhage, periventricular leukomalacia, retinopathy of prematurity. TAD are the natural defenses the organism has to counteract ROS.

Patients and Method: We have measured both ROS and TAD at birth on cord-blood of consecutive full-term healthy babies with a bed-side equipment (Callegari 1930, Parma, Italy).

Results: Eighty-one babies were enrolled, 41/81 were males, 34/81 vaginal deliveries and 47/81 elective CS. Mean value of ROS was 131.1±76.1 and mean value of TAD was 1.39±0.74mmol Trolox equivalent. A direct relationship was found between ROS and PaO2. An inverse relationship was recorded for TAD and ROS.

Discussion: The mean value of ROS found is lower than that of adults. This can be explained by the lower PaO2 the fetus is exposed in utero. The mean value of TAD is in the range of the adult value, meaning probably that the baby is ready to face the higher concentration of oxygen of room-air.

Conclusion: ROS and TAD are strictly related each other. Any prenatal disease (e.g. chorioamnionitis) could increase the value of ROS. Peculiar situations (e.g. prematurity, chronic fetal distress) can reduce the value of TAD. When both situations are present at the same time they can facilitate the development of the aforementioned disease. More studies on preterm infants and on specific diseases are necessary to confirm these hypotheses and find possible preventive strategies.

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Documentation of platelet number changes during pregnancy


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Aim: Study of documented changes in platelet concentration during pregnancy as well as during labor. It concerns a comparative study between cases of normal pregnancy and pathological situations.

Material – Method: The study involves 158 pregnant women, out of which 118 had a normal pregnancy, 16 presented toxinaemia, 13 diabetes mellitus and 11 several other pathological situations. Simultaneously, platelet concentration of a group of 100 healthy women of similar (reproductive) age was studied with the pregnant women in our study. These 100 women constituted the control-martyr group.

Results: It was proven that women with normal pregnancy do not present a statistically important disorder of platelet concentration in regard to the control group (increase of average value of platelets number <5%). Nevertheless, women with pathological pregnancy presented a substantial increase in platelet concentration. The documented increase of the average value of platelet concentration was approximately 65% in pregnant women with hypertension and it was even greater, approximately 110% (doubling of platelet concentration) in pregnant women with diabetes mellitus.

Conclusion: 1) It is proven that platelet behavior ranges during pregnancy to an extent that it varies proportionately and it depends on the kind of the coexistent illness, presenting a substantial increase in the case of hypertension and mainly in the cases of pregnant women with diabetes. 2) Therefore, it is of great significance for the attendant doctors to take this in to consideration, given the fact that the number of platelets is very important for hemostasis during pregnancy.

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Study of the changes of coagulation factors during pregnancy

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Aim: To investigate the changes of the factors related to the coagulation mechanism during pregnancy and to estimate the magnitude of hypercoagulation that they cause.

Material - Method: In our study 72 parturients were included who, among other lab tests, were tested from the 2nd trimester of pregnancy onwards with complete blood count as well as tests related to blood coagulation including prothrombin time (PT), partial thromboplastin time (PTT) and also fibrinogen (FIB).

Results: PT<12 sec was found in 34 women (47.2%), PTT>40 sec in 11 women (15.3%), while FIB>4g/l was found in 63 women (87.5%) of whom 11 (15.3%) had FIB>6g/l. Lastly, in regard to platelets, in 12 cases (16.7%) a platelets number lower than 140,000 was found – this was certified by microscopy examination of peripheral blood films – and in almost all cases, a decrease was recorded in following check-ups as pregnancy progressed.

Conclusions: Consequently, it is proven that in many cases (42.7%) PT decreases during pregnancy, while in fewer cases (15.3%) an increase of PTT is recorded. Also, in the vast majority of cases (87.5%), fibrinogen is increased – and in some of them significantly increased –, while often there is a low platelets number, that continues to decrease as pregnancy progresses. Therefore, there is a great need of conducting the tests necessary to evaluate the coagulation mechanism in every pregnant woman – the earlier the better – and particularly in high risk women.

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Spontaneous apoptosis of monocytes in cord blood of healthy full-term newborns

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Background/Aims: CD95 molecule (Fas) and its ligand (FasL) CD95L are expressed and are functional in mediating cell death in cord blood mononuclear cells. They play important role in the homeostasis of haematopoetic cell populations. CD95 is receptor mediating a signal for cell death by apoptosis. Its inductible ligand has been demonstrated to mediate cell death of multiple types of CD95 expressing cells. We have examined whether the gender affect the expression of these parameters.

Patients and Methods: We included in our study 24 full term newborns: 13 females (F) and 11 males (M). Blood was obtained from the umbilical artery and Fas, FasL and Bcl-2 were determined by flow cytometry.

Results: In term newborns we have found 82.93% of Fas, 14.34% of FasL and 21.39% of Bcl-2 monocytes expression. We have found higher expression of Fas on female monocytes 85.60% in comparison to male monocytes 80.27%. FasL was less represented on female monocytes 13.50%, than in male monocytes 15.18%. The Bcl-2 is a lower demonstrated on female monocytes 20.68%, in contrast to male monocytes 22.11%.

Conclusion: We did not find distinct difference in expression of Fas and FasL on cord monocytes in relation to gender. It concern also expression Bcl-2.

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SciCoMed – a new scientific research database-platform makes science manageable

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E-Science describes a new form of the web-based scientific work. It is aim of SciCoMed to create a neutral platform for scientific research in order to enable better communication within a research team and to facilitate data sharing with the rest of the scientific community. SciCoMed helps to identify and maximize opportunities for international cooperation. Uniform documentation sheets guarantee high data quality. Every research group manages their data autonomously by using a user name and password. Own data sets are visible only for registered Data-Manager. Only after arrangement the data are provided for cooperation projects. So every Data-Manager is integrated into the network without losing his individuality. SciCoMed will contribute to the ambitious goal of "maximum possible benefit" by reducing costs and time required for a study. This is especially an important aspect for many companies. Being part of this network it is easier to find suitable sponsors. For this reason a profile-searching module has been created on the platform. This serves to find and/or to be found more easily. Every researcher has the possibility of announcing his research interest and expertise. Also companies have the possibility of describing their profile.

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The role of recombinant human erythropoietin in the treatment of iron deficiency anemia of pregnancy

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Introduction: The purpose of this study is the evaluation and management of iron deficiency anemia in pregnancy using recombinant human erythropoietin combined with oral iron in severely anemic pregnant. It is followed the practice of some centers which have chosen to use slightly lower Hb values (<11gr/dl) to define anemia during pregnancy remembering to obtain a follow up hem gram.

Method-Material: Forty (40) pregnants were diagnosed as suffering from severe iron deficiency anemia at the Maternity Clinic of Pyrgos, the last five years. These women were treated with recombinant human erythropoietin (10000 IU given SC every other day that means three times weekly) in combination with oral iron. The dose was 1600mg of proteinsuccinylate iron daily. The therapy lasted four weeks and was initiated at the end of second Trimester or alternatively in the third Trimester. The inclusion criteria are described below: Hem globulin (Hb) below 8.5gr/dl, hematocrit (Hct) <26%, low serum ferritin levels (<10µg/dl), red used total iron –binding capacity (<216µg/dl) and abnormal erythroid RBC indices (MCV, MCH, MCHC). A second group of twenty (20) severely anemic pregnants were treated with blood transfusion. The mean value of transfused units was four (4) per woman per month. All women were matched for age and parity and signed informed consent. The Results were collected and evaluated according the mean elevation of Hb and Hct values. The two groups were compared using the Student’s t-test.

Results: The majority of iron deficient anemic pregnants reacted promptly in the combined erythropoietin and supplemental oral iron treatment in the first two weeks of therapy. The mean elevation of Hb value was 2.7gr/dl and Hct value was 8.1%. Two pregnants did not respond to treatment and needed the transfusion of two blood units each. The groups of pregnants who treated with blood transfusion raised Hb at a mean value of 2.9gr/dl and Hct 8.7% respectively. Additionally one pregnant presented anaphylactic reaction in the transfusion group and was treated with prednisolone IV. The statistical analysis of the Results of the two groups did not disclose any statistically significant differences in the elevation of Hb and Hct. For the statistical assessment the Student’s t-test was used.

Conclusion: The use of erythropoietin in severe iron deficiency anemia during pregnancy is not considered to be a standard treatment. In our study proved to be very effective with limited adverse effects. The effective combination of recombinant human erythropoietin SC and elemental iron orally in the severely iron deficient anemic pregnants may also assist in the dramatic reduction of the need in blood transfusion during pregnancy.

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Sildenafil citrate as a therapeutic agent in neonates with persistent pulmonary hypertension

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Background: Persistent pulmonary hypertension of the newborn (PPHN) presents high mortality rates despite the use of high frequency oscillatory ventilation (HFOV) and inhaled nitric oxide (iNO). Advanced therapeutic approaches include oral sildenafil that may cause selective pulmonary vasodilatation, therefore improving gas exchange in PPHN patients.

Objective: To evaluate the effect of sildenafil citrate on oxygenation in confirmed PPHN.

Patients and methods: We studied five term neonates who were admitted to the NICU with severe respiratory failure in the first 24 hours of life from July to March 2008. In all cases, PPHN was confirmed with echocardiogram and was managed with HFOV combined with iNO. Sildenafil solution of 1mg/kg per dose was prepared from a 50mg-tablet and administered by orogastric tube at 3 hour intervals. Arterial blood gases and oxygenation index (OI) were evaluated at 1 hour after each dose. Blood samples were obtained via an umbilical artery catheter.

Results: All infants presented a statistically significant improvement of OI after the administration of first dose sildenafil solution (mean OI before administration: 20.8, ranging from 11 to 33.4 while after administration: 6.8 with a range of 2.07-16, p=0.047). Two infants died, one due to air leak syndrome and one due to severe respiratory failure unresponsive to treatment. OI was higher in these cases.

Conclusions: Sildenafil proved to be more efficacious when introduced before the establishment of severe PPHN. Addition of oral sildenafil appears to be useful in the management of PPHN in a well-equipped NICU.

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Measurement of female tumor markers ca-125 and ca-153 during pregnancy

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Aim: To determine the values of tumor markers CA-125 and CA-153 in pregnant women the first trimester of their pregnancy. As we know: a) the tumor marker CA-125 increases in serous ovarian cystadenocarcinoma, in cancer of the pancreas, breast and lung, also in benign diseases like endometriosis and in pregnancy (especially in the first trimester) and b) the cancer marker CA-153 increases mainly in cases of women with breast cancer (primary or metastatic).

Material-Method: Material for our study were 307 women in their first trimester of pregnancy who were tested for CA-125 and CA-153 tumor markers at the immunological laboratory, using an immunoenzymic analysis method.

Results: a) In 251 pregnant women (81.7%) the tumor markers were at normal levels, b) in 39 (12.7%) tumor marker CA-153 was normal whereas CA-125 was elevated, c) in 12 (3.9%) CA-125 was normal whereas CA-153 was elevated, and d) in 5 (1.6%) both markers were elevated. After a three month period from the end of their pregnancy, follow-up tests were performed who showed normal values for the tumor markers, while no malignancy appeared in any of the women.

Conclusion: It is proven that the tumor marker whose values rise during pregnancy at a greater percentage (12.7%) is CA-125, while, after the end of the pregnancy almost every time the marker values return to normal levels.

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Aflatoxin absorption from the gut of pregnant mice and its appearance in the fetus

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Background: Aflatoxins exposure occurs through largely contaminated food and diary milk. We studied the pharmacokinetics of aflatoxin in mice and characterized IUGR. Methods: Aflatoxin B1, freshly mixed at various times with DMSO, was administered intraperitoneally to groups of mice in single doses of 40mg/kg on GD13 and orally through a orogastric tube. The controls received a proportionate volume of DMSO only. The fetuses were collected on GD18, weighed and observed for visceral and cartilage and bone anomalies and growth delay. Maternal blood, and fetal blood were collected at 15, 30, 45, 60, 90, 120 and 150 minutes post-treatment in other groups of mice. AFB concentrations following maternal exposure to AFB were correlated with liver and placental pathology and fetal effects.

Results: The serum concentrations were predictable and the highest serum levels were seen immediately at 15 minutes in mice given aflatoxins intraperitoneally and slightly later in those given it orally. The mice receiving aflatoxin produced embryos with lower weights than those which did not receive aflatoxins.

Conclusion: Aflatoxins are quickly absorbed whether given orally or intraperitoneally and reach peak levels within 30 minutes. Given in the 3rd trimester it produces intrauterine growth retardation.

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Estradiol inhibits hif-1α expression in first trimester villous explant cultures

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Objective: Expression of Hypoxia inducible factor-1 (HIF-1α) in placenta is high in early gestation between 5 to 8 weeks and then falls precipitously around 10 to 12 weeks of gestation. HIF-1α inhibits trophoblast differentiation toward an invasive extravillous trophoblasts (EVTs). Estradiol begins to rise in 6-8 weeks of gestation when placental function becomes apparent. It has been reported that estradiol inhibits hypoxia induction of HIF-1α in Hep3B Cells. In this study, we investigated the effects of estradiol on expression of HIF-1α and trophoblast differentiation in human first trimester villous explant cultures.

Study Design: Villous explant cultures were established from first trimester human placentas (6-8 weeks of gestation, n=3) obtained from elective terminations of pregnancies. Normal villous tissues were explanted on matrigel and incubated under 3% O2 tension for 5 days. In the experiments evaluating the effect of estradiol, 1ng/mL of estradiol was added to the culture medium. Morphological integrity and viability of villous explants were monitored. Expression of HIF-1α in villous explant cultures was evaluated by Western blotting.

Results: EVTs formed outgrowth of cells from the distal end and invaded into surrounding matrigel. As compared with control villous explants, exposure of villous explants to estradiol showed a decreased outgrowth of cells from the distal end. However, estradiol treatment increased invasion into the surrounding matrigel. On western blots, the expression of HIF-1α decreased after treatment with estradiol under 3% O2 oxygen tension.

Conclusion: These findings suggest a possible role for estradiol to mediate trophoblast differentiation toward an invasive EVTs by interfering with increases in HIF-1α levels.

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The effects of electromagnetic field (EMF) on development of ovary in rat
(A light microscopic study)

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Background, Objectives: With the increase in modern technology, many industrial and household appliances, which we take for granted to be safe expose the public to magnetic fields. Various studies using rodents as experimental models have attempted to elucidate the reproductive toxic effects of exposure to weak magnetic fields and the Results have been found to be rather contradictory. During the last decade genicular systems have been extensively studied and their vital importance for normal function is generally accepted and established their role in their regulation for spermatogenesis and ovogenesis. The aim of this study was to evaluate the effects of Electromagnetic field (EMF) on in-vitro rat postnatal ovary development.

Methods: A total of 40 male and 40 female Wistar rats (about 15 week-old) procured from animal house were used for the study. The equipment was based on Helmholtez coil which works following Fleming's right hand rule. The experimental pups were exposed to EMF till five weeks of postnatal age.

Results: It showed heterochromatism and condensation of oocyte cell nucleus. Depopulation of follicles were seen. The empty spaces between the granulose and theca cells appeared.

Interpretation, Conclusion: The Results suggest that EMF exposure causes profound changes in the ovary on long term exposure it could Result in irreversible damage which may lead to sub fertility. It is suggested that long term exposure should be avoided.

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Pluripotent stem cells isolated from human amniotic fluid and differentiation into pancreatic β-cells

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Human amniotic fluid (HAF) contains multipotent stem cells (AFSCs) which can differentiate into a variety of different cell types. Recently, we demonstrated that obestatin, a peptide encoded by the ghrelin gene, exerts antiapoptotic effects in pancreatic β-cells and human islets and increases the expression of genes involved in β-cell differentiation. We investigated whether: 1) AFSCs would differentiate into pancreatic β-cells and 2) obestatin would increase β-cell differentiation from AFSCs. Amniotic fluid was collected from women undergoing prenatal amniocentesis with informed written consent. Samples of the AF were cultured in selection media (Knockout DMEM + Knockout Serum Replacement + glutamax + penicillin/streptomycin + nonessential amino acids + 2-mercaptoethanol + recombinant human bFGF + Activin A). FACS analysis and immunocytochemical staining showed the presence of mesenchymal and endothelial markers in AFSCs. Real-time PCR evidenced the expression of Oct-4, a marker of pluripotency, during early differentiation phase. However, the β-cell differentiation marker duodenal homeobox factor-1 (PDX-1) could not be detected. Obestatin increased Oct-4 expression but had no effect on β-cell differentiation. These results suggest that, at least under the experimental conditions used in this study, AFSCs do not differentiate into β-cells and obestatin has no effect on β-cell differentiation.

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Novel in vitro model for evaluating the molecular link between oxidative stress and neural tube defects

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Introduction: Oxidative stress, involved in the aetiology of defective embryonal development, can alter most types of cellular molecules, inducing metabolic dysfunction and developmental block. Hyperglycaemia-induced oxidative stress during early diabetic pregnancy increases the risk for neural tube defects. Although oxidative stress has been shown to repress embryonal transcription of Pax-3, a primary lineage control gene required for neural tube closure, the molecular mechanism underlying oxidative stress-induced Pax-3 repression is unknown. The molecular link between sublethal oxidative stress and defective embryonal development remains unclear.

Methods: P19 embryonal carcinoma cells, able to differentiate into all three germ layers, provide an in vitro assay for neural induction and differentiation. P19 cells were exposed to tert-butylhydroperoxide (tbHP) (0.5,20μM) for 36h while differentiating in suspension in bacterial grade tissue culture plates (n=3). Cell viability was then evaluated using light microscopy. Each test was performed 3 times.

Results: 5μM tbHP was sublethal for all P19 cell cultures in all 3 tests. In contrast, 20μM tbHP killed all P19 cell cultures in all 3 tests.

Discussion: Although oxidative stress has been shown to induce Pax-3 repression, the molecular link between sublethal oxidative stress and neural tube defects remains unclear. Here we establish a novel in vitro model to evaluate the molecular link between sublethal oxidative stress and neural tube defects. We hypothesize that sublethal oxidative stress decreases cellular methylation potential, causing epigenetic inhibition of Pax-3 transcription. Future research using this model may reveal the molecular link between sublethal oxidative stress and congenital birth defects.

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Study of the prevalence of cardiovascular risk factors in women with medical history of gestational diabetes


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Aim: To estimate the prevalence of cardiovascular risk factors in women with medical history of gestational diabetes.

Material-Method: 32 cases (group A) of women with the average age of 39.4 years, who presented gestational diabetes without any case of later appearance of type II diabetes, were included in the study. The lipidemic profile was examined, the existence of metabolic syndrome according to NCEP criteria was investigated, while the Results were compared to those of 40 other women (group B), of similar age and BMI, without gestational diabetes.

Results: The prevalence of the metabolic syndrome was almost the same. Nevertheless, 17 women in group A (53.1%) presented 2 out of the 5 criteria, comparing to only 6 women (15%) of the control group. Although the average levels of HDL cholesterol did not differ, 12 women in group A (37.5%) were found with HDL-C level <45mg/dl, comparing to 7 women (17.5%) in group B. Moreover, in group A the average level of triglycerides was much higher, and 15 out of the 32 women (46.9%) presented levels >150mg/dl, comparing to 3 women (7.5%) in group B. Finally, coexistence of triglycerides level >150mg/dl and HDL-C level <45mg/dl was found in 11 women (34.4%) in group A, while none of the women of the control group presented similar values.

Conclusions: It is, therefore, proved that the cardiovascular risk factors and particularly the lipidemic ones, appear more often in women with medical history of gestational diabetes in relation to other women.

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Myocardial response in preterm fetal sheep exposed to a fetal inflammatory response syndrome

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Chorioamnionitis (CA) is associated with increased proinflammatory cytokines in amniotic fluid. Intravenously administered endotoxin to chronically instrumented fetal sheep is well known to induce fetal inflammatory response syndrome (FIRS) which increases perinatal morbidity and mortality. We studied whether the fetal myocardium is affected by the FIRS. To this purpose, mRNA levels of toll-like receptor 2 and 4 (TLR2 and TLR4), hypoxia-inducible factor 1α (HIF-1α) and inducible NO-synthase (iNOS) in fetal ovine myocardium were determined.

Twelve fetal sheep were chronically catheterized at a mean gestational age of 110±1 days (0.7 of gestation) and exposed to the bacterial endotoxin lipopolysaccharide (LPS =100ng, E.coli, 0127:B8) n=6 or saline n=6. Fetuses were delivered via c-section three days after surgery. Gene expression was measured by real-time PCR with ovine-specific primers. We found a 4.4-fold increase for TLR2 mRNA, 5.7-fold for TLR4 mRNA, 5.8-fold for HIF-1α mRNA and 3.0-fold for iNOS mRNA in the FIRS group compared to the control group.

Our results indicate that FIRS induced myocardial hypoxia and that there were changes in mRNA level of pattern recognition receptors. Similar changes in adults have been associated with cardiac dysfunction. Further research is needed to compare fetal myocardial changes in FIRS to adult.

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Intraamniotic endotoxin induced chorioamnionitis alters fetal thymus function


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Background: The fetal thymus is essential for the development of T-lymphocytes. Regulatory T-lymphocytes mediate homeostasis of the immune system and differentiate under the control of the transcription factor FoxP3 in the thymus. The effects of fetal inflammation caused by chorioamnionitis on thymus development and function are not well understood.

Methods: Chorioamnionitis was induced by a single intraamniotic injection of LPS 5h, 1d, 2d or 5d before delivery of preterm lambs at 123d gestation age. Cord blood lymphocytes, plasma cortisol and thymus weight were quantified. Corticosteroid receptors-, NF-κB- and FoxP3- positive cells were evaluated by immunohistochemistry.

Results: Lymphocytes were decreased by 40% after 1d in the endotoxin group. Thymus weight was reduced, with a 40% decrease at 5d. Endotoxin increased the plasma cortisol concentration with a maximum of 2.6-fold after 2d without affecting the expression of the corticosteroid receptor in thymus. In addition, endotoxin increased NF-κB signalling and reduced the number of FoxP3 positive cells to a minimum at 1d of 60%. These observed changes were no longer evident after 5d.

Conclusion: This antenatal inflammatory sequence underlines chorioamnionitis induces changes in fetal thymus which may have implication on the development of immune functions in preterm infants in later life.

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Development of a standardized method to sterilize and preserve amniotic membrane grafts

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Objective: Amnion grafts have been used in experimental models and clinical practice to encourage epithelialisation as a wound dressing for severe burns, skin ulcers and for the treatment of ophthalmologic diseases. There still does not exist any standardized method to sterilize and preserve amniotic membranes (AM). We examined biophysical and histological characteristics of AM which were sterilized and preserved by different techniques in order to find a method that complies with International Standards (Council of Europe, EATB Standards).

Methods: AM were prepared by 3 different methods: sterilization with peracetic acid and glycerol conservation [GLY] respectively AIR-drying [AIR] and preservation at -80°C without sterilization [-80°]. Tear strength and sulphur content were measured and fibrillar collagen Type V and VII (Sigma C6805) were determined as components of the basement membrane.

Results: The tear strengths were 18 N/cm² [AIR}, 10 N/cm² [GLY] and 5 N/cm² [-80°]. The mean concentrations of sulphur were 34.5 Edx-Units [AIR], 24.9 units [-80°] and 13.9 units [GLY]. The typical structure of the AM was preserved by all methods. Collagen Type VII was clearly detectable in [-80°], scarcely in [GLY] and not traceable in [AIR]. Collagen type V was scarcely detectable in [GLY] and [-80°].

Conclusions: The Results confirm the findings of the pilot survey of von Versen et al. (2004). The AM which were sterilized with peracetic acid and preserved by air-drying showed higher tear strength and sulphur concentration suggesting better biophysical properties compared to the two other methods (p<0.05). In addition the use of a validated sterilization procedure guarantees safety of infections.

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Cells cultured from amniotic fluid cells contribute to recovery from acute renal injury

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We injected cells cultured from human amniotic fluid (AF) in SCID mice with experimental acute renal injury to evaluate whether they aid in the process of renal regeneration.

Amniotic fluid was collected from women undergoing prenatal amniocentesis with informed written consent and approval of the ethic committee. Samples of the AF were cultured in selection media (Alpha MEM + Amniomax + FCS + Glutamine + Pen/Strep + Primocin).

Cytofluorimetric analysis showed that AF cells are positive for CD44, CD73, and CD166 and partially for Oct4 and SSEA4. Later passages are also positive for CD105. CD45 is negative.

We successfully differentiated AF cells into osteogenic, demonstrated by the accumulation of calcium (Von Kossa), adipogenic, demonstrated by lipid vesicles formation and their Oil Red O coloration, and chondrogenic cells, demonstrated by the presence of hyaluronic acid and sialomicin (Alcian Blue) in the cellular aggregate treated with paraffin.

Experimental injury was induced in SCID mice by glycerol injection. At day 3, animals received AF cells by tail vein injection. Control animals received injection by saline.

We found a significant increase of proliferation counting BrdU- and Pcna positive cells/per optical field in tissue biopsies from day 5: in the AF cells injected mice BrdU was 10.1 6.8; Pcna: 10.8 7.3, in control animals BrdU 0.85 1.1; Pcna: 3.55 2.8.

BUN measured: in untreated control animals was 107 7mg/dL, while in AF treated animals were reduced to 47.8 24.5mg/dL. Our Results suggest that AF cells contribute to regeneration by promoting repair of tubular structures.

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High salt intake in pregnancy alters maturation of rat glomeruli

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Faulty fetal programming leads to alterations in offspring’s kidney morphology. Low number of glomeruli is known to cause high blood pressure later in life. It has been suggested that high salt intake during pregnancy influences blood pressure in the offspring. It was the purpose of the present study to clarify whether high salt intake in pregnancy alters kidney development in the offspring. Sprague-Dawley rats were fed normal (0.15%), medium (1.3%), or high (8.0%) salt diet during pregnancy and weaning. Kidney morphology was assessed at 1 week postnatal and expression of proteins of interest at term and at 1 week of age. At age 1 week the number of S-shaped bodies was significantly lower (405±308) and the number mature glomeruli (818±405) and layers of developing glomeruli (7.1±0.6) was higher in the offspring of mothers on high-salt compared to the other groups (1044±490, 460±304, and 5.9±0.9 respectively). As a net Result total number of glomeruli was significantly lower in the offspring of mothers on high-salt (9476±1264) compared to the other groups (11175±1920). At 1 week of age in the offspring of mothers on high salt the glomeruli were bigger compared to lower salt intake. The expression of Pax-2 and FGF-2 was significantly lower in the offspring of mothers on high-salt consistent with their causative role. However there was no difference between the groups in litter size, birth weight, and placenta size. We conclude that high salt intake during pregnancy accelerates maturation of glomeruli in the offspring, but reduces their final number.

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Basal Body Temperature and Endometriosis

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Abstract: This investigation examined the association between pelvic endometriosis and altered Basal Body Temperature (BBT). This study population consisted of infertile couples who have been diagnosed as having endometriosis. A significant association was found between the presence of pelvic endometriosis and the appearance of a late decline in BBT during the early follicular phase of the menstrual cycle. A temperature of 97.80°F on the first 3 days of the menses is associated with pelvic endometriosis. The findings of this study support the clinical diagnosis of endometriosis in infertile women. The basal body temperature chart analysis may be useful as a clinical adjunct when endometriosis is suspected.

Key world: BBT (Basal Body Temperature): P (Pregnenolone): PF (Paritoneal fluid) PG (Prostaglandin)

A relatively common problem in women is endometriosis. The association between endometriosis and infertility is clearly established. It is proposed that endometriosis has the potential to produce pathology in two ways:
2. Peritoneal inflammatory response.

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Higher circulating antiangiogenic endostatin, but not angiopoietin-2, decreases pregnancy potential in IVF cycles

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Objective: To analyze the potential role of angiopoietin-2 and endostatin in infertility.

Background: Infertility is a growing problem and 10-20% remains unexplained. Disturbances in angiogenesis could contribute to unexplained infertility. In animal studies, disturbances in expression of proangiogenic VEGF-A and its soluble receptor sVEGFR-1 impair reproductive angiogenesis and decreases fertility. Information about angiopoietin-2 and endostatin, antiangiogenic growth factors that together with proangiogenic growth factors such as VEGF-A act to shape and direct angiogenesis, and infertility in humans is limited.

Methods: In a case-control study, women with unexplained infertility (n=20) and tubal infertility (n=18) were recruited. Blood samples during normal menstrual cycle and in vitro fertilization (IVF) cycle were analyzed with ELISA. Patients were compared with respect to both infertility and pregnancy outcome.

Results: Angiopoietin-2 did not vary significantly during the IVF cycle or between pregnancy outcome groups. No differences in angiopoietin-2 or endostatin concentrations between infertility groups were found. Endostatin concentrations (ng/mL, median (range)) were significantly higher during the IVF cycle (79.6 (42.5-143.2) than during the normal cycle (66.2 (39.7-90.1), p<0.0001). Higher endostatin both in the normal cycle (69.4 (44.7-85.2) vs. 56.1 (40.0-80.4), p=0.015) and the IVF cycle (88.2 (56.7-143.2) vs. 78.4 (52.6-95.3), p=0.006) associated with negative pregnancy outcome.

Conclusions: The significant variability of endostatin both between the normal menstrual cycle and the IVF cycle and within the IVF cycle indicates that endostatin participates in reproductive angiogenesis. Importantly, higher endostatin predicted negative pregnancy outcome. A higher endostatin concentration could disturb the reproductive angiogenic balance, contributing to decreased fertility.

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Anatomopathological findings in placentas of patients with suspicion of fetal intrapartum hypoxia

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Objective: to learn about the most frequent placental pathologies in patients with diagnose of fetal intrapartum hypoxia.

Method: 316 cases of patients with suspicion of fetal intrapartum hypoxia at this hospital were analyzed from May 2006, through March. We conducted an anatomopathological study of the corresponding placentas.

Results: 72% of placentas were studied, 40% of them evidenced maternal vascular pathology (15% low flow, 9% placental infarction, 7% acute ischemia, 3.1% maternal floor infarction), 15.8% showed postmature placentas, 7% fetal vessel obstruction, 6.2% were infection-caused pathologies (3.2% cytomegalovirus, 3% chorioamnionitis), and last, 3% of placentas were normal.

Conclusions: The most frequent findings for placental pathologies in patients with suspicion of fetal intrapartum hypoxia were maternal vascular pathology and placental postmaturity.

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