Determining the Amount of Glucose, PTT, TT and Olfactory Nerve in 30-day-old Babies Rabbit of pregnant under Hypoxia

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Abstract: This research aimed at investigating the impact of hypoxia in embryonic period on the density of plasma glucose, PTT and TT and also the effect of disorder of olfactory nerve system on glucose, PTT and TT in baby rabbits. The research (which was carried out during 2009-2011) was based on an experimental design and used two groups: an experimental group and a control group including pregnant rabbits. The findings of the study indicated that embryonic period hypoxia and disorders of olfactory nerve system decreased the amount of glucose, PTT and TT and there was a meaningful difference between newborn babies in experimental and control groups. [Abdi, B., Aliyev, A., Qaziyev, A., Chekaniazar S. **Determining the Amount of Glucose, PTT, TT and Olfactory Nerve in 30-day-old Babies Rabbit of pregnant under Hypoxia.** Life Science Journal. 2011; 8(4):390-393] (ISSN:1097-8135). http://www.lifesciencesite.com.

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1. Introduction

In their environment, living things are faced with great problems like hypoxia. Hypoxia causes disorders in structure and metabolism of normal cells. Breathing problems, cardiovascular and central nerve system disorders, bronchitis, asthma, jcerebralapoplexy, blood pressure are among the problems in initiated by hypoxia (king, 1985). As we know, embryo needs some special conditions in order to grow in mother's womb however; changes in the system of outer environments can result in fundamental problems in the growth of embryo in long term. It is also well known that long term hypoxia condition in pregnant animals can result in atrophy in the breathing system of babies given birth by these animals. External factors which result in hypoxia can create problems among babies in both birth and post-birth period (Giussani, 2007). Scientific findings show that embryos which have suffered from hypoxia for short or long time in their growth period in mothers, womb may also be affected by pathological conditions in their organs in post-birth growth period which can result in incurable diseases (30-40 percent mortality rate has been reported in this case) (Lig, 2003).

In order to prevent cellular hypoxia, the best way is to use O_3 in treatments. It is worth mentioning that the fact that we can breathe easily and relax after a rainy weather is related to the abundance of O_3 in the air which enters in O_3 form into the alveolus and in O_2 form into vascular system and cells. That is why O_3 therapy apparatuses are used in O_2-saturation of blood. O_3 derived from vascular system enters cells in O_2 form and at that time the person feels relaxed. Within 3 minutes hypoxia results in unrecoverable cardiovascular problems, headaches start, memory declines, sleep rhythm is disturbed and diabetic risk increases (kaur, 2006). Hypoxia usually initially appears in daytime activities and sleeping time. The halt of breathing results in the decline of blood oxygen which often happens in sleeping time. Due to the negligence of patient of their own problems and conditions, the doctors are not usually able to offer suitable treatments (Lyer, 1998).In this study, in addition to hypoxia in pregnant rabbits; in different stages olfactory nerve system of newborn baby rabbits has been investigated. The experiments have indicated that the cutting off of epithelium of newborn babies in experimental group results in the decrease of glucose, PTT and TT. In the process of research the newborn babies of the experimental group had been exposed to hypoxia. The experiment showed that there was a meaningful difference between the babies in control and experimental group regarding the decrease of the amount of glucose, PTT and TT. This decrease was more remarkable in experimental group. The findings of the present study are in line with the findings of other studies on olfactory nerve system. This can somehow be related to issues like air pollution and environmental control. Breathing the ingression of gases and materials from nostrils can result in the dangerous spread of these materials in sensory cells (Mucigant, 2006).

2. Material and methods

Healthy pregnant New Zealand rabbits were divided into four groups. Three female rabbit which was breathing natural air was used as the control, and the others-sample rabbits-were exposed to a daily 20-minute period of low oxygen: 10 days during 30 days of pregnancy for the first rabbit (day 1-10) 10 days during 30 days of pregnancy for the second rabbit (day 11-20) and 10 days during 30 days of pregnancy for the third rabbit (day 21-30).

- 7% O2 and 93% N2 compressed in a balloon were transferred into a non-toxic box.
- 7% oxygen was observed with oximeter pulse.

Within 10 days, sample pregnant rabbits breathed the rest of natural air after a 20-minute hypoxia, and new-born rabbits grew in natural air for 30 days. On the 31 day of their life, blood sampling was carried out and the amount of glucose, PTT and TT was determined (method of disabling Olfactory Nerves System (Epithelium): benumbing with deep lidocaine using Rhenoscope method). All samples were kept under supervision and care for four days due to the decision of the cultural committee. On the fifth day all blood samples (3 cc) from ear part were collected and then glucose from serum enzyme condition, PTT with German ORTO kit and TT with French STAGO kit were determined. All ethical issues were observed in this experiment.

2.1. Statistical –Analysis

One-way ANOVA analysis shows that there is a significant difference for glucose pretest-posttest, thrombin pretest-posttest and prothrombin pretest-posttest groups at a'=0.05 significance level.

2. Results

Also, Multiple Comparisons Dunnett (2-sided) shows that at a'=0.05 significance level there is a significant difference in glucose pretest and prothrombin pretest of first ten day group with control, second ten day group with control and third ten day group with control ($p<0.005$).

There is not a significance difference in glucose posttest of first ten day group with control at a'=0.05 significance level ($p=0.143$).but there is a significant difference in second ten day group with control and third ten day group with control at a'=0.05 significance level ($p<0.005$).

There is not significance difference in pretest thrombin of first ten day group with control at a'=0.05 significance level ($p=0.118$).but there is a significant difference in second ten day group with control and third ten day group with control at a'=0.05 significance level ($p<0.005$).

There is a significance difference in posttest thrombin of first ten day group with control and second ten day group with control at a'=0.05 significance level ($p<0.005$). But there is no significant difference in third ten day group a'=0.05 significance level ($p<0.005$).

There is no significant difference in posttest prothrombin of first ten day group with control at a'=0.05 significance level ($p=0.214$). but there is a significance difference in second ten day group with control and third ten day group with control at a'=0.05 significance level ($p<0.005$).

Table1. Descriptive Statistics for Glucose, PTT, TT

Traits \ Treatments		Control	1 – 10	11 – 20	21 -- 30
Glucose	Pretest	153 ± 8.767	133 ± 5.874	118 ± 5.874	132 ± 13.820
	Posttest	138.25 ± 14.584	125 ± 7.106	110 ± 7.071	105.5 ± 12.014
Prothrombin	Pretest	15.13 ± 1.126	12.6 ± 0.548	11.6 ± 0.548	11.5 ± 0.577
	Posttest	13.75 ± 1.035	12.4 ± 0.548	10.6 ± 0.548	10.25 ± 2.630
Thrombin	Pretest	30 ± 0.926	29 ± 0.707	27 ± 0.707	28 ± 0.816
	Posttest	1.488 ± 0.526	20 ± 1.581	18 ± 0.707	1.258 ± 0.629

3. Discussion

We carried out the research on the embryo in the sample rabbits' uterus under hypoxia in different time periods such as (1-10 days), (11-20 days) and (21-30 days). It was observed that newborn rabbits of these periods grew up 30 days at normal conditions. In comparison with newborn rabbits of control group that were not under hypoxia and had normal embryonic period and 30 days growth, we found some variations. For example, the rate of Glucose, PTT and TT in sample group's blood was less than that of control group. Experimental research on 30-day-old newborn rabbits among four samples and control group, after cutting the olfactory nerve, showed that Glucose, PTT and TT rate in sample rabbits was less than that of control ones. In fact, from physiological point of view, statistical analysis of experimental studies indicates that insufficiency of

hypoxia and olfactory nerve led to chronic and incurable diseases and also directly showed the secretion time of clotting on liver. Moreover the findings revealed that reduction of physical activities can have short time effect on thrombin in different tissues. Hilberg et al. (2003) found that maximal short term exercise will not activate blood clotting in healthy youth sample, Of course, there were intangible variations at normal rates. The current study suggests that PTT reduced instantly after taking exercise (Hilberg, 2005). However, contrasting results were obtained concerning the effect of exercise on PTT and TT. In general, most studies do not display noticeable effect on PTT, while some investigations were indicator of significant reduction on TT (Smith, 2003). Swimming activates clotting system through fiberinolystic activity (Lins, 2003) It is widely believed that long-term physical activates reduce TT compared to short-term activities. It is worth noting that the effect of muscular exercise on the clotting of blood can be regarded as diverse and wide-ranging areas of research on human being and laboratory animals. The results of such studies were relatively indicative of instant increasing of clotting after muscular activities. Some investigation also indicates the effect of heavy activities on blood clotting. Rebio et.al found that boring exercise in adults reduces relative time of activated TT (Riberiro, 2007). Furthermore, it is evident that heavy and boring activities resulted in variations of blood clotting and fiberinolysis (Ferguson, 1987). In this light, Hilberg et.al observed that maximal activities in 90 seconds were not able to simulate the clotting of blood. As a result, we conclude that hypoxia has a significant effect on PTT and TT rates in newborn rabbits. In addition, physical activities reduce TT in different tissues. Taking into account the previous studies in which rabbits' activities (aerobic) produced hypoxia in sample group and thus made noticeable variations in clotting times, I show that hypoxia causes meaningful variations in Glucose, PTT and TT rate. These findings are consistent with previous studies.

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