

## Neonatology Abstracts

### Oral Presentation

#### Nutritional Needs Of Premature Infants

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Growth failure is common among premature infants. The cause is insufficient intake of protein and energy. Insufficient protein and energy intakes are responsible for poor neuro-cognitive development later in life. Therefore, every effort must be made to meet the requirements for protein and energy. Good nutritional management thus begins with a thorough knowledge of nutrient requirements. In practice, there are obstacles to meeting nutrient requirements. But the goal must be to meet requirements at all times. Nutrient intakes (requirements) needed to achieve growth similar to that of the fetus are summarized in the Table. When intakes are less than requirements, growth is slower and the risk of impaired neuro-cognitive development is increased.

**Parenteral nutrition:** Parenteral nutrition is required by all infants with birth weight <1000 g and by the great majority of those with birth weight between 1000 and 1500 g. Considerable progress has been made in recent years in the parenteral nutritional support of premature infants. The previously common delays in initiation have been eliminated or at least reduced. Also, doses of amino acids have been increased to where they are now close to requirements and are so from early on. Current best practice is to start parenteral nutrition right at birth (within 2 h) and to continue until enteral feedings provide >90% of required intakes. The dose of amino acids should be no less than 3.0 g/kg/d. Lipids should be started within 1-2 days of birth as a source of essential long-chain PUFAs and of energy.

**Enteral nutrition, early:** The purpose of initial feedings ("trophic feedings") is to stimulate the immature gut to undergo maturation. The safest and most efficient feeding for this purpose is mother's milk. Advances in early enteral nutrition have been slow, largely because perceptions linking early feedings to necrotizing enterocolitis (NEC) have proven difficult to overcome. Gastric residuals are important markers of gut function and are useful in monitoring gut maturation and in guiding feeding advancements. Large residuals should not lead to cessation of feedings unless there are clearly other signs of NEC. Prokinetic agents are advocated by some, but there is no consensus on their use.

**Enteral nutrition, late:** After the discontinuation of parenteral nutrition, fortified human milk or formula are the sole sources of nutrition. Human milk must be fortified with nutrients to meet the very high needs of the premature infant for all nutrients. Growth is often not parallel to that of the fetus and tends to be more rapid with formula than with fortified human milk. To overcome this, some neonatologists use more than the standard amount of fortifier, while others add extra protein. However, there is no consensus on the best way to fortify human milk.

**Post-discharge nutrition:** After discharge from the hospital, the nutrient requirements of premature infants continue to be higher than those of full-term infants. Formula-fed infants should receive special post-discharge formulas, whereas infants fed human milk should continue to receive nutrient fortification in a suitable form.

**Key Words:** Prematur infant; Nutrition; Human Milk

### Oral Presentation

#### Neural Tube Defects in Native Fars Ethnicity in Northern Iran

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**Objectives:** NTD is one of the leading causes of infant mortality worldwide. This study was designed to determine the prevalence of NTDs among native Fars ethnic groups during 1998-2005, and to identify maternal and demographic factors associated with NTDs.

**Methods and Subjects:** We performed a descriptive cross-sectional hospital-based study in Dezyani hospital, Gorgan, North of Iran, since January 1998 till December 2005. The design was based on a sample of 30,639 births of native Fars ethnic groups. Data were analyzed by using SPSSV13.5 software and were compared with the chi-square test.

**Findings:** The prevalence of NTD in Native Fars during the 8-year period was 25.4 per 10000 births (20.6/10000 and 30.6/10000 in males and females, respectively but this difference was not significant. In Native Fars the prevalence for spina bifida, anencephaly and encephalocele were 12.7, 11.4 and 1.3 per 10000, respectively. The rate of NTD was 48.9/10000 in newborns with mothers aged > 35 years. 28% of the parents had consanguineous marriages. Also 47.5% of the parents resided in rural areas and 52.5% in urban areas.

**Conclusion:** This investigation showed that the rate of NTDs in Native Fars is higher in Iran. Also this rate

is higher than the Canada and Ukraine and lower than Chinese people.

**Key Words:** Neural tube defects; Native Fars; Ethnicity; Epidemiology; Iran

#### Oral Presentation

### Comparison of Perinatal Outcomes of Group Versus Individual Prenatal Care: A Randomized Controlled Trial

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**Objectives:** Despite a decline in infant mortality rate, neonatal mortality rate is still high in Iran. Preterm birth and low birth are the main cause of death in newborn babies. As the health of the newborn infant is inexorably tied to the health of the mother, strategies to improve the health and care of women are also expected to improve both pregnancy and neonatal health outcomes. One strategy that has been implemented recently and had positive impact on neonatal outcomes, including preterm birth and low birth weight is group prenatal care. The aim of this study was to determine whether group prenatal care affects perinatal outcomes, including birth weight and preterm birth.

**Methods and Subjects:** This was a cluster randomized controlled trial. A total of 678 low-risk pregnant women with gestational age less than 24 weeks entered into the trial. The experimental group received group prenatal care and the control group received routine individual prenatal care. Group model participants received care in a group setting. Each 2-hour prenatal care session included physical assessment, education and skills building, and support through facilitated group discussion. Cluster analyses were done with adjustments for potentially confounding variables.

**Findings:** Birth weight was significantly greater for infants of women in group prenatal care (mean birth weight 3248g in group care versus 3160g in individual care  $p < 0.01$ ). Women in group care were more likely to take multivitamin and mineral supplement during pregnancy (OR=3.28 95%CI=2.4-4.49). They had less cesarean delivery (OR=0.71 95%CI=0.55-0.89), higher rate of any and exclusive breastfeeding at 2 months postpartum (OR=2.73 95%CI=1.98-4.89 and OR=2.61 95%CI=1.85-4.36 respectively), higher rate of multivitamin supplement

used for their infants (OR=2.84 95%CI=1.85-4.36) and higher rate of postpartum contraception use (OR=1.83 95%CI=1.12-2.89). The mean number of days to diagnosis of vaginal and urinary tract infection was significantly shorter in the group care women ( $p < .0001$  and  $P < .0001$ , respectively).

**Conclusion:** The findings suggest beneficial effects of group prenatal care. This intervention could serve as a resource for improving perinatal outcomes.

**Key Words:** Prenatal care; Group prenatal care; Perinatal outcome

#### Oral Presentation

### Evaluation of Severe Indirect Neonatal Hyperbilirubinemia and Its Etiologies in Term Neonates More Than 2500gr, Admitted to Taleghani Hospital of Gorgan During One Year

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**Objectives:** Jaundice is a common problem in neonatal period. If pathologic jaundice is not diagnosed, kern-icterus is probable which is accompanied with significant morbidity. Due to importance of severe jaundice we decided to study its causes.

**Methods and Subjects:** This is a cross sectional descriptive study from Mehr of 1383 to Mehr of 1384 that was performed in Taleghani hospital of Gorgan on 92 neonates admitted due to severe hyperbilirubinemia. Severe hyperbilirubinemia was considered as bilirubin more than 18 mg/dl in term neonates weighing more than 2500g. Data were analyzed by SPSS 11 software after collection.

**Findings:** The incidence of severe hyperbilirubinemia in this study was 12%. The etiology of 41 cases out of 92 neonates was unknown, 25 cases were diagnosed as sepsis, 15 neonates were G6PD deficient, 7 cases had UTI, 3 neonates had ABO incompatibility and one neonate was due to breast feeding. In 8 cases there was positive history of jaundice in previous siblings. Birth weight in 90 neonates was between 2500-4000g. Mean and standard deviation of total bilirubin was  $21.5 \pm 3.5$ . 54 cases of neonates were males and 38 were females. 57 neonates were product of normal vaginal delivery and 35 were product of caesarian section. All neonates were exclusively breast fed.

**Conclusion:** Sepsis should be ruled out in all cases of severe hyperbilirubinemia.

**Key Words:** Indirect Hyperbilirubinemia; Frequency; Icteric; Kern Icterus

## Oral Presentation

**Bacterial Evaluation of Expressed Breast Milk from Mothers of NICU Admitted Newborns****Mehran Karimi, MD; Hengameh Zandi, PhD; Shokouh Taghipour Zahir, MD**

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**Objectives:** Contamination of expressed breast milk can be due to contamination in expressing, storage or transferring. Ordinary newborn children are fed with expressed breast milk by their mothers. The rate of contamination in expressed breast milk in different studies is not the same and it is reported as high as 97% in some studies, so we decided to evaluate the extent of contamination, most prevalent causing microorganisms and also drug sensitivity of these microorganisms. The aim of this study is finding prevalence and type of organism contamination of mother's milk that their newborns admitted to NICU. Also determination of drug sensitivity of obtained organisms, relationship between the contamination factors such as place of milk expression (in ward or home), how the milk expressed (by hand or pump), intervals between milk expression and feeding, mother's literacy and age are another aims.

**Methods and Subjects:** In this study, we evaluated expressed breast milk of 80 mothers that their children were admitted to NICU. About 0.5-1 cc of milk were taken by NICU nurses and were sent to laboratory center in 20 minutes. Microbiologist cultured the samples to evaluate the type of microorganism and calculate the colonies after 24 hours. Then antibiogram test were taken on muller-hinton medium and evaluated after 24 hours.

**Findings:** Our findings showed that 85% of samples were contaminated. The most prevalent organism were klebsiella (13.7%) and staphylococci epidermidis (12.5%). In aspect of drug resistance, 95% of gram negative organisms were sensitive to imipenem and also more effective antibiotic on isolated staphylococci were ceftizoxime (with 46.6% resistancy). 32.4% of gram negative and 66.7% of gram positive organisms had 104-105 cfu/ml and the others had over than 105 cfu/ml (P=0.02).

**Conclusion:** There were no significant relationship between contamination of milk and site of milk expressing (home or hospital), method of expressing (pump or hand), time of milk storage and demographic specification (like age or education) of mothers.

**Key Words:** Breast milk; NICU; Bacterial Contamination; yazd

## Oral Presentation

**Comparison of Maternal and Umbilical Cord Blood Selenium Level in Term and Preterm Neonates****Ramin Iranpour, MD; Ali Zandian MD; Majid Mohammadizadeh, MD, Ashraf Mohammadzadeh, MD; Mahdi Balali-Mood, MD; Mehnosh Hajihedari MS**

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**Objectives:** Selenium is an essential trace element and has a main role in cellular antioxidant defense system. In very preterm babies, low selenium is associated with an increased risk of complications such as chronic neonatal lung disease and retinopathy of prematurity. This study was undertaken to determine and compare the serum selenium levels in term and preterm neonates. In addition, we aimed to determine the relationships of maternal and neonatal selenium concentrations.

**Methods and Subjects:** From March to July 2008, serum selenium concentration were measured in umbilical cord and maternal venous blood samples of 30 mother-infant pairs with gestational age of less than 34 weeks and 30 mother-infant pairs with normal full-term neonates. Serum-selenium levels were analyzed by atomic absorption spectrometry.

**Findings:** The mean selenium concentration in healthy full term neonates was higher than premature infants ( $124.80 \pm 13.72$  versus  $100.30 \pm 11.72$   $\mu\text{g/L}$ ,  $P=0.0001$ ). The mean selenium concentration in mother of full term neonates and preterm groups was not significantly different ( $117.03 \pm 17.15$  versus  $110.56 \pm 17.49$   $\mu\text{g/L}$ ,  $p=0.15$ ). Cord selenium concentrations were strongly correlated with gestational age and birth weight ( $r=0.66$ ,  $P<0.0001$  and  $r=0.59$ ,  $P<0.0001$ , respectively) when the data of all infants were analyzed together. None of the 60 women had a serum selenium level below the laboratory lower limit of normal of 70.0  $\mu\text{g/L}$ . Maternal selenium levels were correlated with cord blood in their neonates ( $r=0.40$ ,  $P=0.001$ ) when data of all newborn infants and mothers were considered together.

**Conclusion:** Our data show that in our area mothers had a relatively good selenium status and serum selenium was not a significant predictor of preterm delivery. However, the cord serum selenium was significantly higher in full-term than preterm infants but the cord serum selenium in both group were in suggested normal range.

**Key Words:** Selenium; Neonates; Preterm; Cord blood

Oral Presentation

### Study of the Effects of Intravenous Immunoglobulin (IVIG) in Hemolytic Jaundice of the Newborn due to ABO and Rh Isoimmunization

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**Objective:** Recent studies suggest the role of IVIG in decreasing immune hemolytic jaundice of the newborn and exchange transfusion. This study, evaluates the efficacy of IVIG in hemolytic jaundice of newborn due to ABO and Rh isoimmunization.

**Methods and Subjects:** This clinical trial study was performed on hospitalized newborns with hemolytic jaundice due to ABO and Rh isoimmunization in neonatal ward at Tehran Mahdieh hospital from Oct 2007 to Oct 2008. These neonates divided randomly to control (phototherapy) and cases (phototherapy plus IVIG) groups. IVIG administered 500 mg/kg during 4 hours and up to maximum 3 doses, if it was required. All of the newborns were examined by severity of jaundice, duration of phototherapy, hospitalization, exchange transfusion and complications of IVIG administration. The data was analyzed by SPSS software and by Chi-square and independent T tests.

**Findings:** In neonates who gave IVIG in addition to phototherapy the duration of phototherapy, hospitalization and exchange transfusion were significantly lower than the control group. No complication of IVIG were observed.

**Conclusion:** Administration of IVIG is an effective and safe method for decreasing severity of immune hemolytic jaundice of newborns and exchange transfusion.

**Key Words:** Neonatal immune hemolytic jaundice; Phototherapy; Exchange transfusion; Intravenous immunoglobulin

Poster Presentation

### Effect of Kangaroo Care on Infantile Colic

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**Objectives:** Infantile colic has been defined as episodes of excessive and persistent crying without known medical cause. Kangaroo mother care is a new method for baby care with several advantages. This study designed for evolution KMC and its effect on infantile colic.

**Methods and Subjects:** This study was a randomized controlled trial. From 1<sup>st</sup> May 2008 to 1<sup>st</sup> May 2009, a total of 70 children, aged 3-12 weeks with persistent colic symptoms were studied. There were children referred to our clinic because of excessive crying. Normal mother-infant pairs were recruited at 3 to 12 weeks of age after obtaining baseline for two days. Subjects divided randomly to a kangaroo care or conventional care group. For analyzing the data we used 2-sample t-test, X<sup>2</sup> test and Fisher exact test.

**Findings:** In the beginning of study, the kangaroo care group had 3.5hr/d crying and after the intervention, it decreased to 1.7hr/d, the difference were significant (P<0.05). But there were no difference in feeding duration between 2 groups (P=0.2, P=0.07). Awake and content (normal behavior) behaviors were significantly increased in the kangaroo care group (P=0.001). Sleeping duration was significantly increased in the kangaroo care group (P=0.02).

**Conclusion:** Kangaroo care may use as a simple and safe method for colicky infants treatment.

**Key Words:** Infant colic; Kangaroo care; Mother infant interaction

Oral Presentation

### Comparison of Side Effects of Survanta and Curosurf in Decreasing Mortality Due to Respiratory Distress Syndrome (RDS) in premature infants Admitted to NICU of Ghaem's Hospital on 2006-2008

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**Objectives:** Using natural and synthetic surfactant is a rescue treatment for respiratory disease syndrome. We compared the onset of clinical response and safety of two surfactants, poractant alfa (Curosurf) and beractant (Survanta) for treatment of respiratory distress syndrome (RDS) in preterm infants. In Iran, Survanta and Curosurf are the most frequently used natural surfactant preparations. The aim of this study was to compare the effect of Survanta and Curosurf on outcome in premature infants.

**Methods and Subjects:** This was a clinical trial study that performed during a 2-year period in our neonatal ward. Sample size was calculated with 95% confidence and power 80, 74 in Survanta group and 30 in Curosurf group, 104 premature infants were treated with surfactant. The differences between the patient groups were assessed by ANOVA or the calculation of relative risks.

**Findings:** There were no statistically significant differences between infants treated with S and C in mean gestational age (30.58 vs. 29.00 weeks), and birth weight (1388 vs. 1330 g). There was no significant difference between groups, or in incidence at 28th day of BPD (40.5% vs. 40%), IVH III/IV (13.5% vs. 13.3%), pneumothorax (20% vs. 20%), PDA (28.3% vs. 20%), and death (28% vs. 26.6%).

**Conclusion:** This study shows that Survanta and Curosurf are similar in treatment of neonatal respiratory disease syndrome.

**Key Words:** Neonates; Respiratory distress syndrome; Surfactant

#### Oral Presentation

### Effect of Glucose-6-Phosphate Dehydrogenase Deficiency on Neonatal Hyperbilirubinemia

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**Objectives:** Recently the pathophysiology of hyperbilirubinemia in glucose-6-phosphate dehydrogenase (G6PD) deficient neonates has been questioned. The main mechanism for hyperbilirubinemia is not clear but diminished conjugation of bilirubin and hemolysis may be two important factors. For this reason, we conducted a study for evaluating the neonates with hyperbilirubinemia and G6PD deficiency in 17 Shahrivar Children hospital in Rasht, Guilan.

**Methods and Subjects:** From 21 March 2007 to 21 September 2008, 483 healthy term neonates with chief complaint of icter who were admitted to 17 Shahrivar Children hospital in Rasht were included in this study. Sex, gestational age, mode of delivery, feeding type, blood group and RH of mother and newborn, coombs test (both direct and indirect), hemoglobin level at admission, reticulocyte count, total and direct bilirubin at admission, peripheral blood smear, G6PD activity, duration of admission, were evaluated. The results of these variants were compared between normal G6PD activity group and deficient group. The results were analyzed by Chi-square and T-test and Pearson correlation test, via SPSS version 15.

**Findings:** G6PD deficiency was significantly more common in male neonates than females. Hemoglobin level at admission was significantly lower in G6PD deficient group. Also there was strong positive correlation between direct and total bilirubin in both groups. Severe anemia was not reported in both groups.

**Conclusion:** Hemolysis may be the main mechanism of hyperbilirubinemia in G6PD deficient neonates

and there was no finding of diminished bilirubin conjugation in our study.

**KeyWords:** G6PD deficiency; Hyperbilirubinemia; Neonate; Hemolysis

#### Oral Presentation

### Perinatal Outcomes of Newborn Infants Conceived by Assisted Reproductive Techniques in Royan Institute

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**Objectives:** Nowadays, assisted reproductive techniques are significantly grown up and more frequently used. Outcomes of such pregnancies have been rarely evaluated in our country. A descriptive study was planned to assess health and condition of neonates conceived with assisted techniques in one year period.

**Methods and Subjects:** 443 women become pregnant by one of assisted techniques (IVF, IUI, ICSI) in Royan institute, Tehran enrolled in a descriptive study in a 16 month period beginning on September 2007. Sampling method used was non-incident, consecutive. A questionnaire was completed after interview with mother and implementing baby birth card. Time from ovum fertilization to delivery was considered as gestational (conception) age. Pregnant mothers were under periodic evaluation until delivery. Stillbirths were followed via phone.

**Findings:** From total number of 443 conceptions, 13 pregnancy (2.9%) were demised in utero (Stillbirths) and 10 newborns (2.6%) were dead in neonatal period. 133 infants (43%) were born after multifetal pregnancies. 96 infants (31%) were prematurely born. 106 infants (34.3%) had low birth weight (Less than 2500g.). 83 low birth weight infants (78.3%) were multiplets. After completion of the study, 71 women were still passing their pregnancy period.

**Conclusion:** The most important factor for untoward perinatal events was multifetal pregnancy. Such pregnancies would be more frequently complicated and threatened. Low birth weight and prematurity are more frequent in singletons conceived by assisted techniques in respect to control singletons.

**Key Words:** Assisted reproductive techniques; Prematurity; Low birth weight; Multifetal pregnancy

Poster Presentation

### Auditory Evoked Responses in Autistic Children

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**Objectives:** Autism is characterized by deficits in social interaction and communication, and by stereotyped, restrictive, and repetitive behavior and interests. Event related potentials (ERPs) represent transient changes in the brain's electrical activity in response to the presentation of a stimulus or event. Using ERPs allows researchers to elucidate sources of the core deficits in autism by focusing first on fundamental impairments in sensory processing and then linking these impairments to deficits in social cognition that may define this disorder.

**Methods and Subjects:** In this study, tried to present a review article of twenty eight international original articles since 2000 until 2009, focused on this subject.

**Findings:** Low-Level Auditory Processing: Several studies have shown abnormal latencies and amplitudes of these early components in autism compared to typical controls, although the nature of the differences varies across study. Children with autism had significantly shorter latencies of the P1, N1, P2 and P3 components. Most of the children with autism showed an intact MMN to changes in non-speech sounds, but had no MMN in response to changes in speech syllables. Additionally, the majority of the autistic children preferred to listen to non-speech sounds. MMN to pitch changes was enhanced in children with autism. Higher-Level Cognitive Processing: Auditory P3b had smaller amplitudes to targets than did normal controls, suggesting that individuals with autism processed novelty differently and the P3a was smaller for speech sounds compared to non-speech sounds in the autism group. Auditory Social Cognition: Components of interest were the P1, N2, P3 and N4. The investigators found that children with autism had smaller amplitudes in all components of interest to speech sounds in the passive condition, but not in the active condition, suggesting that speech sound encoding may be restored when voluntary attention is given to speech sounds.

**Conclusion:** AER results indicated significant differences in auditory processing, discriminating and perception between autistic children and controls. As we look to the future, we posit that tremendous insight can be gained by applying ERPs and can facilitate early diagnosis and the creation of informed interventions for children with autism.

**Key Words:** Children; Autism; Auditory Evoked Responses

Poster Presentation

### Inadequate Breast-Feeding Associated with Hyponatremia: Retrospective Analysis of 72 Newborns

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**Objectives:** The aim of the present paper was to define the incidence, complications, morbidity and mortality of hyponatremic dehydration due to inadequate breast-feeding in a neonatal unit.

**Methods and Subjects:** A retrospective study was carried out between 2006 and 2009, to identify neonates with serum sodium level  $\geq 150$  mEq/L at the Neonatal Unit, General Hospital, Saveh Iran.

**Findings:** The incidence of hyponatremic dehydration secondary to inadequate breast-feeding was 5.1%, occurring in 72 infants among 1410 hospitalized neonates with the following characteristics: mean gestational age, 38.05 weeks (32–40weeks); birthweight, 3211 g (2150 – 3900 g); mother's age, 25.6 years (19 – 40 years); weight loss, 9.02% (2.77 – 31.57%); proportion of vaginal deliveries, 48.5%; Cesarean deliveries, 51.5%, and proportion of first-time mothers, 60%. Major presenting symptoms were fever (59.7%), jaundice (56.9%), poor oral intake (50%), restlessness (22.2%), lethargy (15.2%) and Low urine output (12.5%). The median sodium; blood urea nitrogen (BUN); and creatinine levels on admission were 155 mmol/L (150 – 180 mmol/L), 77.9 mg/dL (11– 400 mg/dL), and 1.35 mg/dL (0.5– 13 mg/dL), respectively. Major complications were as follows: acute renal failure, 94.4%; seizure, 13.8% (three patients developed seizure within the first 24 h of rehydration therapy); disseminated intravascular coagulation, 4.16%; intracranial hemorrhage, 1.38% and one patient (1.38%) died (sepsis).

**Conclusions:** Hyponatremic dehydration amongst exclusively breastfed neonates due to inadequate breast-feeding or underfeeding is a serious, potentially devastating and life-threatening disorder, and can damage the central nervous system. Hyponatremic dehydration would appear to be a rather common problem. In order to avoid serious morbidity and mortality, all breastfed infants should receive regular follow-up by health-care worker. Furthermore, we advocate that all mothers should be taught the skills of breastfeeding, and warning signs of breastfeeding failure and hyponatremia, accompanied with the monitoring of the weight of infants until growth commences, in order to reduce the likelihood of this condition arising, especially for first-time mothers. Follow up of infants for adequate breast-feeding is important. Pediatricians must

maintain a high level of suspicion, especially in cases of pathologic infant weight loss after delivery.

**Key Words:** Breast-feeding; Dehydration; Hypermnatremia; Neonate

#### Oral Presentation

### Transcutaneous Bilirubin Measurement in Preterm Neonates

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**Objectives:** Hyperbilirubinemia is a common problem during neonatal period especially for preterm neonates. Transcutaneous bilirubin measurement (TCB) by special devices had been documented as an effective tool for predicting neonatal jaundice in full term neonates, evidences are controversial.

**Methods and Subjects:** We carried out a prospective study in Shariaty NICU. 126 paired TCB/TSB measurements were obtained. Transcutaneous bilirubin measurements (on forehead and sternum) were obtained for every admitted preterm infant who clinically showed jaundice by JH2-1A device and total serum bilirubin (TSB) measurements was done within 30 min of TCB measurements.

**Findings:** 126 paired TSB/TSB measurements were collected. 58 (46%) were males and 68 (54%) were females. The mean gestational age was 31 wk and mean birth weight was 1728±60gr. 30 percent of neonates were ill. The mean value obtained by TBS was 8.8 mg/dl and for frontal TCB was 8-8mg/dl and for sternal TCB was 7-4mg/dl. There were correlation between TBS and TCB and the maximum correlation were seen in 33-37 wk of gestation and birth weight more than 2500gr with TCB measurement in for forehead. Healthy preterm neonates had significant correlation of TSB and TCB  $r=0.56$   $p$  value<0.001 and ill preterm neonates had  $r=0.82$ ,  $P<0.001$ . The correlation between TBS and TCB with and without phototherapy was  $r=0.66$   $P<0.001$  and  $r=0.69$ ,  $P<0.001$ , respectively.

**Conclusion:** Although TCB measurement (frontal or sternal) may underestimate TBS but there is significant correlation between TCB and TBS in preterm neonates even when they are ill or receiving phototherapy. And Bilicheck can be used for determination of bilirbin level in preterm neonates. This tool significant reduces the number of blood sampling.

**Key Words:** Hyperbilirubinemia; Transcutaneous; Neonate

#### Poster Presentation

### Evaluation of Hospitalized Neonate with Hyaline Membrane Disease in Madani Hospital of Khorram-Abad from Years 2002 to 2006

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**Objectives:** Respiratory distress syndrome is a nasal tachypnea syndrome that is seen in newborn and is demonstrated with cyanosis subcostal and intercostals depression and granting. This syndrome is a flaring prevalent problem especially in premature infants to separate from sepsis and pneumonia is problem. The aim of this study was to evaluate hospitalized neonate in Madani hospital of Khorramabad Iran with diagnose of respiratory distress syndrome in years 2002 to 2006.

**Methods and Subjects:** This study was a cross sectional study that was performed for 411 neonates that were hospitalized in Madani hospital of Khorram-Abad with diagnoses of respiratory distress syndrome in years 2002 to 2006. Studied variables included gestational age, sex, cesarean delivery, mothers' diabetic. Data was collected by questionnaire and analyzed by spss software.

**Findings:** In this research 411 (19%) patients of 2158 hospitalized neonate had RDS. 297 patients(27.3 %) were male and 114 (27.7%) girl. 227 neonate (66.9 %) had gestational age lesser than 37 week and 136 (33.1%) had gestational age more than 37 week. 224 neonate (54.5%) were born with cesarean section and 187 (45.5 %) with normal vaginal delivery. Out of 411 patients, 270 (65.7%) were living and 141 (34.3%) were deid ( $P=0.02$ ).

**Conclusion:** The most of HMD patients was male, had gestational age lesser than 37 weeks, and were born by cesarean section.

**Key Words:** Respiratory distress syndrome; Neonate, Hyaline membrane disease

#### Oral Presentation

### Evaluation of the Frequency of Neonatal Respiratory Distress and its Etiologies in Hospitalized Neonates

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**Objectives:** Respiratory distress in newborns characterized by symptoms such as tachypnea, granting, intercostal retraction, nasal flaring and

cyanosis. Early diagnosis and supportive treatment can be leading to decrease mortality and morbidity rate and improved prognosis. The aim of the present study was to evaluate the frequency of neonatal respiratory distress and its etiologies in hospitalized newborns in neonatal and NICU ward in a one year period.

**Methods and Subjects:** This cross sectional descriptive study was conducted on 1295 newborns hospitalized in neonatal and NICU ward of Ekbatan hospital in Hamedan province of Iran, in a one year period for evaluating the frequency of neonatal respiratory distress and its etiologies. All newborns with respiratory distress were evaluated for the etiology of respiratory distress, gestational age, sex and birth weight. Patients with transient tachypnea of neonates (TTN), cardiac diseases, pneumonia, respiratory distress syndrome (RDS), electrolyte disorders, meningitis, and sepsis had entered the study and those with only apnea without any other signs, excluded. Data were analyzed by SPSS 13.

**Findings:** 42 (3.2%) newborns from 1295 had respiratory distress. The most common cause of respiratory distress was hyaline membrane disease (HMD) (64.3%). Other causes include: sepsis (11.9%), TTN (9.5%), pneumonia (4.8%), cardiac disease (4.8%), anatomic disorders (2.4%), and aspiration (2.4%). 57.1% of neonates were boys and 42.9% were girls. 81% of newborns were preterm and 19% were term. 26.2% of neonates had normal birth weight (2500-4000gr), 33.5% had low birth weight (1500-2500gr), and 40.5% had very low birth weight (less than 1500gr).

**Conclusion:** According to the results of this study, pulmonary causes were the most and HMD was the most common cause of respiratory distress in newborns. With respect to this results, by prevention of preterm labour and treatment of affected subjects we may be able to decrease mortality and morbidity of respiratory distress syndromes.

**Key Words:** Newborns; Respiratory distress; Etiology

#### Poster Presentation

### Revenue Comparison of 10 steps for Breast Feeding Promotion and Support in Baby – Friendly Governmental and Private Hospitals in Lorestan Province

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**Objectives:** Breast feeding is one of the goals of WHO and UNISEF. Everyday 5500 babies die for inappropriate nutrition and many babies complicated for bad feeding. Well being feeding in infancy is one

of the best ways for childhood health. Starting baby – friendly hospitals were the good way for supporting breast feeding. The goals of study were revenue comparison of 10 steps for breast feeding promotion and support in baby – friendly hospitals in governmental and private hospitals in Lorestan province.

**Methods and Subjects:** This is a comparison study on revenue of 10 steps for breast feeding promotion and support in governmental and private baby – friendly hospitals in Lorestan province. Tools of study were paper forms that were completed with health experts then information were collected and analyzed with statistical methods.

**Findings:** There are 9 babies – friendly hospitals in Lorestan, 7 hospitals are governmental and 2 hospitals are private. Step 1: in governmental hospital (GH) were 96.57% and in private hospital (PH) were 50%, Step 2: in GH were 93.14%, and in PH were 21.5%, Step 3: in GH were 94.57% and in PH were 100%, Step 4: in GH were 94.57% and in PH were 100%, Step 5: in GH were 88.57% and in PH were 24.5%, Step 6: in GH and PH were 100%, Step 7: in GH were 96.85% and PH were 50%, Step 8: in GH were 91.57% and in PH were 25%, Step 9: in GH were 99.28% and in PH were 25%, Step 10: in GH were 93% and in PH were 20%.

**Conclusion:** Comparison of 10 steps for breast feeding promotion and support in governmental and private baby-friendly hospitals revealed that governmental hospital had better revenue than private hospitals. Attention to revenue of private hospital must be done.

**Key Words:** Baby friendly hospital; Private hospital; Governmental hospital

#### Oral Presentation

### Effect of Anticonvulsant Drugs, Phenobarbital and Valproic acid on Serum Level of Cholesterol, Triglyceride, Lipoprotein and Liver Enzymes in Convulsive Children

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**Objectives:** Studies on the effect of various antiepileptic drugs on serum lipids have reported contradictory reports. We aimed to find the effect of Phenobarbital and sodium valproate monotherapy on serum lipid profile and liver function tests in epileptic children.

**Methods and Subjects:** This case-control study was conducted in Amirkola Pediatric hospital. One hundred and ten people with epilepsy enrolled the study. Children with hepatic or renal disease, those

receiving medications which may alter liver functions or serum lipids were excluded. Patients were allocated into two groups, first group included 63 patients received Phenobarbital and second group include 47 patients received sodium valproate both in divided dose. A venous blood sample was collected after overnight fasting. Serum triglyceride, total cholesterol, LDL, HDL and liver function tests were evaluated. Data were analyzed by SPSS version 12.

**Findings:** In children receiving Phenobarbital total cholesterol ( $P<0.001$ ), LDL ( $P=0.02$ ), HDL ( $P<0.001$ ), ALP ( $P=0.09$ ), SGPT ( $P=0.000$ ), SGOT ( $P<0.001$ ) significantly increased after treatment, but TG level had no significant change ( $P=0.1$ ). In children receiving sodium valproate, HDL ( $P=0.049$ ), ALP ( $P=0.06$ ), SGOT ( $P<0.001$ ), SGPT ( $P<0.001$ ), significantly increased after treatment but there was no statistically significant change in total cholesterol ( $P=0.06$ ), LDL ( $P=0.1$ ) and TG ( $P=0.1$ ).

**Conclusion:** Our results suggest a need for monitoring serum total cholesterol, HDL, LDL and TG levels and perhaps, prescribing a low-cholesterol diet in patients receiving antiepileptic drugs.

**Key Words:** Seizure; Phenobarbital; Sodium valproate

#### Poster Presentation

### Analysis of the Decreasing Time of Neonates in the Kalaleh District During the Years 2004-2007

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**Objectives:** Death of neonates holds a significant percentage of infantile death. The World Health organization estimated that more than 9 millions of newborns die before birth or during the first week of life every year and almost all of these deaths occur in developing countries. Since the neonate mortality index is one of the indexes of the millennium development goals, in this study it was tried to identify the decreasing time of newborns during the recent 4 years so that the interfering plan for correct planning in fortification of caring systems would be designed.

**Methods and Subjects:** [The statistical society of all neonates deceases in rural area of Kalale district was occurred during the years 1383-1386.]meaning? In this district a death analysis from the information of which is extracted from the health files of families, interviews with families and reference to hospitals, was filled for all cases of newborn deaths after the death report. The tool for collecting data was designed in the figure of a form. After collecting data, the questions were encoded and the data were entered in SPSS ver 11.5 software and were examined with descriptive and analytic statistics.

**Findings:** Generally 81.6% of newborn deaths happened in the first week after birth. 36.5% of newborns died in the first 24 hours and 45.2% of cases died between the first 2 to 7 days of their lives. There was a considerable relationship between neonatal mortality before first week and prematurity ( $P=0.003$ ).

**Discussion:** Since most cases of neonatal mortality happened in the first week and because of prematurity, focus on pregnancy care, post-delivery services, observing the standards of releasing form hospital and pursuing the released newborns continually are of great importance.

**Key Words:** Neonate; Death time; Kalaleh

#### Poster Presentation

### International Classification of Certain Conditions Originating in the Perinatal Period

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The ICD-10-CM is a morbidity classification for classifying diagnoses and reason for visits in all health care settings. The ICD-10-CM is based on the ICD-10, the statistical classification of disease published by the World Health Organization (WHO). The ICD-10-CM is divided into the index, an alphabetical list of terms and their corresponding code, and the Tabular List, a chronological list of codes divided into chapters based on body system or condition. The index is divided in to two part, the index to Diseases and Injury and the Index to External Cause of Injury. 16th chapter of ICD-10-CM is "certain conditions originating in the perinatal period (P00-P96)". This chapter contains the following blocks: P00-P04 Newborn affected by maternal factors and by complications of pregnancy, labor, and delivery, P05-P07 Disorders related to length of gestation and fetal growth, P10-P15 Birth trauma, P19-P29 Respiratory and cardiovascular disorders specific to the perinatal period, P35-P39 Infections specific to the perinatal period, P50-P61 Hemorrhagic and hematological disorders of newborn, P70-P74 Transitory endocrine and metabolic disorders specific to newborn, P75-P78 Digestive system disorders of newborn, P80-P83 Conditions involving the integument and temperature regulation of newborn, P84 Other problem with newborn, P90-P96 Other disorder originating in the perinatal period.

**Key Words:** Classification of diseases; Newborn, Perinatal period

Oral Presentation

### Correlation between Umbilical Cord PH and Apgar Score in High Risk Pregnancy

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**Objective:** The Apgar score as a proven useful tool for rapid assessment of the neonate is often poorly correlated with other indicators of intrapartum neonatal well being. This study was carried out to determine the correlation between umbilical cord pH and Apgar score in high risk pregnancies.

**Methods and Subjects:** This is a prospective cross-sectional, analytic study performed on 96 mother-fetal pairs, at Shahid Yahyanejad hospital, in 2004-2005, in Babol, Iran which is affiliated to Babol University of Medical Sciences. Apgar score at 1 and 5 minutes after birth was taken and an umbilical cord blood gas analysis was done immediately after birth in both groups. Mothers came with a labor pain divided into high risk and low risk, if they have had any perinatal risk factors. Other data like gestational age, birth weight, need for resuscitation and admission to the newborn ward or NICU were gathered by a questionnaire and compared between two groups. A p-value less than 0.05 was considered being significant.

**Findings:** The gestational age and birth weight were the same in two groups of high risk and low risk mothers. Mean of umbilical artery blood PH in high risk mothers was significantly lower than the low risk mothers ( $p=0.004$ ). Mean of Apgar scores at 1 and 5 minutes were significantly lower in high risk mothers than the low risk mothers ( $p<0.05$ ). According to the Kendal correlation coefficient there were no significant correlations between the Apgar score at 1 and 5 minutes and umbilical cord PH in low risk group ( $R=0.21$ ,  $P=0.1$ ). But in high risk group there were significant correlation between the Apgar score at 1 and 5 minutes and the umbilical cord PH ( $R=0.01$ ,  $P=0.04$  and  $R=0.18$ ,  $P=0.1$ , respectively).

**Conclusion:** Combination of Apgar score and umbilical cord PH measurement in high risk pregnant mother could better detect jeopardized babies.

**Key Words:** Apgar score; Umbilical cord; High risk; Blood; pH; ABG

Poster Presentation

### Comparing the Various Phototherapy Methods in Term Jaundiced Neonates

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**Objectives:** Phototherapy is safe and effective in neonatal hyperbilirubinemia. Despite its worldwide application, specific questions regarding methods of optimizing efficacy remain unanswered. This study is carried out to compare the various phototherapy methods in term jaundiced neonates.

**Methods and Subjects:** A clinical randomized controlled trial was performed in three groups of term neonates. One group was treated with continuous single phototherapy & fixed supine position during phototherapy. Another group received an Intermittent single phototherapy without change position, and third group received continuous single phototherapy with changed position.

**Findings:** There was no statistically significant difference between sex & other variables & the mean of phototherapy duration. No side effects were observed.

**Conclusion:** The present study showed that Intermittent single phototherapy is as effective as continuous single phototherapy in the treatment of neonatal hyperbilirubinemia in the term newborns.

**Key Words:** Phototherapy; Term newborn; Hyperbilirubinemia

Oral Presentation

### Evaluation of Seasonal Variations of Anthropometric Parameters in Newborns in Shariati Hospital between 2004-2005

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**Objective:** Birth body size is an indicator of intrauterine growth and important in later health. This study was performed to assess seasonal variation of birth body size in a group of Iranian newborn.

**Methods and Subjects:** In a retrospective design, hospital records of 2034 of singleton newborn with gestational age >37 weeks and no malformation or neonatal or maternal disorder, was assessed. Sex, delivery type, birth month, birth weight, height, head and chest circumferences was extracted.

**Findings:** 1038 cases (51%) of neonates were males and 692 cases (34%) were born in Natural vaginal delivery. No significant differences were found in seasonal mean of birth weight ( $P=0.285$ ); although most mean of birth weight was in winter and least in summer. But peak of birth height was in fall and least in summer (mean difference: 0.40; 95% CI: 0.06-0.74;  $P=0.013$ ). The differences between mean of birth head circumference was significant ( $P=0.027$ ) and the most mean was in winter and least in summer (mean difference: 0.24; 95% CI: 0.02-0.46;  $P=0.030$ ). The differences between mean of birth chest circumference was significant and the most an least mean was in fall and spring, respectively (mean difference: 0.42; 95% CI: 0.12-0.71;  $P=0.002$ ).

**Conclusion:** Birth body size is the least in newborn of hot seasonal half of the year and most in cold seasonal half of the year.

**Key Words:** Season; Anthropometric; Newborn; Variation; Temperature

#### Poster Presentation

### Effect of Intravenous Fluid Supplementation on Serum Bilirubin Level During Phototherapy in Healthy Term Neonates with Severe Nonhemolytic Hyperbilirubinemia

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**Objectives:** Phototherapy is a safe way which has remained the standard treatment in neonatal hyperbilirubinemia. During phototherapy, the bilirubin is converted to less toxic water-soluble photoisomers. Because the photoproducts responsible for the decline in serum bilirubin are excreted in both urine and bile, maintaining adequate hydration and good urine output should help improving the efficacy of phototherapy. We decided to evaluate the effect of intravenous fluid supplementation on the treatment of the jaundiced healthy term neonates during phototherapy.

**Methods and Subjects:** During January 2009 until June 2009, 50 jaundiced neonates who were admitted to the neonatal ward of Shahid Sadoughi and Shohadaye Kargar hospitals, were selected. These neonates were all healthy, breast-fed, delivered between 37 and 41 weeks of gestation, following an uneventful pregnancy and had a total serum bilirubin (TSB) between 17 and 24.9 mg/dl. We excluded infants with major congenital malformation, hemolytic disease, infection, severe dehydration (more than 10% weight loss), evidence of acute bilirubin encephalopathy (kernicterus) as well as

infants already receiving intravenous fluids for any reason. After obtaining the parental permission, neonates were assigned randomly to two groups (each group 25 patients). Either the breast-fed on demand (non supplemental group), or breast-fed in addition to intravenous fluid supplementation (supplemental group). The neonates in the fluid supplemental group received an additional 60ml/kg (half of daily maintenance) and an extra 10ml/kg/day as a phototherapy allowance (overall 70ml/kg/day). The supplementary fluid was given as continuous intravenous 1/3 2/3 infusion via a peripheral vein. All phototherapy units contained 8 special blue lamps. Total and direct serum bilirubin levels were measured at the beginning, after 8 hours and then every 24 hours. Numeric variables were compared between two groups using independent Student test.

**Findings:** There was no significant difference between the rates of TSB decrease in the two groups during phototherapy (13.94±1.7mg/dl in supplemental vs 14.45±1.7 mg/dl in non-supplemental group). In addition, the duration of hospitalization was not significantly different in two groups (49±13.3 hours in fluid-supplemented vs. 57±22.5 hours in control group;  $P=0.1$ )

**Conclusion:** Based on our results, we recommend that all healthy term infants with significant hyperbilirubinemia should not be given IV fluid supplementation routinely. It seems that administration of extra intravenous fluids in jaundiced healthy term, breast-fed neonates have no beneficial effect on the rate of serum bilirubin reduction during conventional phototherapy. Furthermore, administration of intravenous fluid may be accompanied to such problems as painful veinpuncture and potential risks of extravasation of fluid and infection.

**Key Words:** Neonatal icter; Jaundice; Serum therapy; Phototherapy

#### Oral Presentation

### Meconium Induced Lung injury

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Meconium aspiration syndrome (MAS) in one of the major clinical problems encountered in the neonatal period. It is an inflammatory newborn lung disease that frequently leads to severe respiratory failure with a potential fatal outcome. Aspiration of meconium is known to cause airway obstruction, damage of airways and surfactant inactivation. meconium also causes chemical peritonitis. In the newborn the major clinical manifestations include problems of oxygenation and respiratory failure associated with

increased pulmonary vascular reactivity. It has been shown that persist pulmonary hypertension is a hallmark of severe MAS. In addition to above-described derangements meconium also induces severe intense inflammatory reaction in the airway and alveoli. There is emerging evidence that inflammatory reaction maybe central to the initial progression of MAS and associated severe pulmonary hypertension. Inflammatory responses to meconium – the first response to meconium injury is the release of active inflammatory cells. The most important of which are neutrophils and macrophages. Cytokines such as tumor – necrosis factor –  $\alpha$  (TNF- $\alpha$ ). IL –1 $\beta$ , IL 6 and IL 8 propagate development of lung injury. meconium also is a potent activator of complement, an important mediator of inflammatory tissue damage. Local release of phospholipase A2 after meconium aspiration may mediate cellular apoptosis. The exact mechanism meconium – induced apoptosis in lung is presently unknown. Increased release of reactive oxygen species from the pulmonary inflammatory cell may be associated with apoptotic cell death in the lung. Nitric oxide (NO) may induce apoptosis in different cell lines. It is interesting to note that inhaled smaller amount of NO may inhibit apoptosis. Pulmonary angiotensin II has been recently proposed to contribute to receptor- mediated lung epithelial apoptosis.  $\alpha$ 1- antitripsin a member of proteinase inhibitor is synthesized by epithelial cells macrophages, monocytes and neutrophils has a protective role against meconium induced lung injury. Inflammation that set the process of apoptosis if is moderate may leave no permanent damage. Severe apoptosis initiates fibrotic reaction and damage to the lung. Better understanding of meconium – induced inflammatory injury and apoptosis may lead to development of the therapeutic interventions of MAS.

**Key Words:** Meconium aspiration syndrome; Respiratory failure; Lung injury

#### Poster Presentation

### Prevalence of Hearing Loss among High Risk Hospitalized Newborns

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**Objective:** This study was performed with the aim to screen for hearing loss in 950 high risk newborns hospitalized in hospitals affiliated to Tehran University using the OAE test.

**Method and Subjects:** A total of 950 neonates hospitalized in the Neonatal and NICU wards of Valie-Asr, Shariati, Medical Center and Bahrami Hospitals during the years 2004-2006, who showed at

least one risk factor using TEOAE hearing test, were enrolled into this cross-sectional descriptive analytical study and were diagnosed with mild deafness and total deafness.

**Findings:** Multivariate logistic regression and paired t-test showed that blood exchange, low birth weight and low first minute Apgar scores had the highest independent risk for hearing loss among newborn.

**Conclusion:** Instead of the low prevalence of mild problem, screening at an early stage is important.

**Key Words:** Neonatal screening; High risk newborns; NICU, Hearing loss; OAE

#### Oral Presentation

### Study of the Prevalence of Conjunctivitis in Newborn Delivered by Vaginal Delivery and its Relation with Sexual Transmitted Infections in Their Mothers

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**Objective:** Ophthalmia neonatorum is a form of conjunctivitis occurring in infants younger than 4wk of age and it is the most common eye disease of newborns. Its prevalence in developed countries is about 1% and in developing countries is 3%-8%. There are some complications due to ophthalmia neonatorum for example blindness or pneumonia. So in most of countries there are some programs for ophthalmia neonatorum prophylaxis. But in Iran we don't have special program for eye prophylaxis in newborn and also there isn't any program for Iranian women screening about sexual transmitted infections. So regarding the priority of the subject, we decided to determine the prevalence of conjunctivitis in newborn who were born by vaginal delivery in Javahery hospital and find its relation with sexually transmitted infections in their mothers.

**Methods and Subjects:** We performed gram stained and culture from discharge and a blood sample for detecting of Chlamydia antibody (IgM, IgG) in all mothers who are referred for delivery to Javahery hospital and we followed all newborns (vaginal delivery) up to 15 days. If conjunctivitis appeared, we would perform gram stained and culture of purulent discharge and sent a sample of blood for determining of Chlamydia Ab (IgM, IgG) before treatment, then compared mothers' and newborns' laboratory data's. 300 newborns were studied.

**Findings:** Prevalence of ophthalmia neonatorum was 15.3% and 72.1% were males. 48.8% of them were 5 days or less. There was no case of gonorrhoea and Chlamydia level Ab were negative in newborns with

conjunctivitis. The results of eyes discharge were negative in 79.1% and in 11.6% Staphylococcus coagula positive was grown. The most common microorganisms in vaginal discharge of mothers were Staphylococcus coagula positive (30.2%) and then Lactobacillus (11.6%). Anti Chlamydia anti body level was negative in them except two cases.

**Conclusion:** This study showed us the prevalence of ophthalmia neonatorum is higher than other countries but considering that the lack of Chlamydia and gonorrhea in our mothers and newborns to propose non sexually transmitted infections, conjunctivitis in newborns and it is common in males.

**Key Words:** Conjunctivitis; Normal vaginal delivery; Sexual transmitted infection; Newborn

#### Poster Presentation

### Ophthalmia Neonatarum

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**Objective:** Ophthalmia neonatarum remains ocular morbidity and blindness which is preventable. The organisms causing ophtalmia neonatarum are aquired

mainly from the mothers' birth canal during delivery. The present research aimed to evaluate identification of bacterial agents and need to prophylaxis.

**Methods and Subjects:** A prospective study was conducted on all babies born over a period of one year in Hajar hospital of Sharekord medical university. Babies developing purulent eye discharge were diagnosis to have conjunctivitis. In this study 223 neonates enrolled from April 2007 to April 2008 in Hajar hospital. In this hospital based study using ELISA to diagnosis of Chlamydia trachomatis infection and gonococcal culture For diagnosis of gonococcal conjunctivitis.

**Finding:** The incidence of neonatal conjunctivitis of neonatal conjunctivitis was 2.8%. Chlamydial conjunctivitis was identified in 9.8% of cases and gonococcal conjunctivitis was identified in 4% of cases.

**Conclusion:** Based on the Results of this study prophylaxis of ophthalmia neonatarum is highly recommended.

**Key word:** Ophthalmia neonatarum; Incidence; Conjunctivitis; Newborn; Chlamydia