# IN VITRO EVIDENCE OF COW'S MILK PROTEIN SENSITISATION IN NEONATAL

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Median (25th-75th)	Spontaneous	РНА	BLG	Casein
NEC IFNg (n=11)	19(9-53)**	412(285-717)**	125(81-281)**	39(17-62)**
NEC IL-4 (n=11)	17(9-59)**	484(237-748)**	81(58-206)**	23(7-206)**
NEC IL-5 (n=10)	23(4-69)**	353(189-463)**	74(49-328)**	14(3-82)*
Control IFNg (n=21)	0 (0-2)	7 (3-47)	1 (0-3)	1(0-4)
Control IL-4 (n=21)	0 (0-2)	4 (1-14)	1 (0-4)	1 (0-5)
Control IL-5 (n=21)	1 (0-3)	8 (1-14)	1 (0-4)	2 (0-5)

LPMC: Gut controls had no detectable cytokine production at rest or with mitogen/antigen stimulation. NEC infants had only a small but significant increase in baseline cytokine secretion [median (25th-75th), IFWg; 3(0-15), p.003; IL-4; 2(1-9), p.002; IL-5; 1(0-4), p.013), PHA and ConA produced an increase in mainly IFNg and IL-4 positive cells respectively [IFWg; 11(5-41), p< 0.05; IL-4; 13(4-20), p.0.01], Ohly  $3^{9}$  NEC infants showed positive response to BLG (IFNg) and none to casein. **Conclusion:** Our study has demonstrated for the first time concomittant ITh/ITA cytokine activation in NEC. We have also demonstrated significant CMP sensitisation primarily in the systemic comparatinent, without comparable mucosal

activation, possibly suggesting a secondary event related to the alterations in mucosal barrier. These findings provide a novel mechanism for a potential direct contributory role of CMP in NEC inflammatory cascade. Clinical relevance with respect to e.g. post-NEC feeding regime management requires further investigation.

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## INFANTILE ALLERGIC COLITIS: A HETEROGENOUS T-HELPER TYPE 1/ T-HELPER

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 Rekground; Allergic colitis (AC) is a well recognised cause of rectal bleeding in infancy. Dietary antigens have been clinically is of correlate the clinical (Ad) sease (Ad), and Advar, "Monthampton, School of Medicine, Division of Medicine, Status, Advar, "Monthampton, Division of Medicine, Division of

Median (25th-75th)	Spontaneous	РНА	ConA
AC IFNã(n=9)	0 (0-7)	51(43-247)**	147(57-336)**
AC IL-4 (n=9)	2(0-12)	15(2-26)*	26 (5-48)
AC IL-5 (n=7)	1(0-13)	16(4-36)*	23(7-110)*
Control IFNa(n=11)	0 (0-1)	15 (7-50)	21 (5-65)
Control IL-4 (n=11)	0 (0-1)	2 (1-4)	6 (0-17)
Control IL-5 (n=8)	0 (0-1)	1 (0-5)	3 (0-8)

Conclusion: This is the first study that has attempted to correlate the in vivo with in vitro dietary antigen response in allergic colitis. Results following PHA/ConA stimulation illustrate Th/Th2 immune activation in AC. In vitro CMP sensitisation could only be demonstrated in a minority of AC infants although all the in vitro responders had clinical evidence of CMP sensitisation. The differences may reflect limitations in assay sensitivity and the complexity of mucosal immune regulatory network.

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### VITAMIN K STATUS IN PRETERM INFANTS: A RANDOMISED CONTROLLED TRIAL

VITAMIN K STATUS IN PRETERM INFANTS: A RANDOMISED CONTROLLED TRIAL TO COMPARE THREE REGIMES OF PROPHYLAXIS
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Background: Neonatal Vitamin K stores are precarious. Without adequate Vitamin K prophylaxis preterm infants may be a particular risk of vitamin K deficiency bleding (VKDB), but the optimal dose and route is unclear. Objective: To compare the vitamin K stores are precarious. Without Vitagous J, Cord blod was obtained, venous blood samples of preterm infants during the first week of life and when on full enteral feeds, following three regimes of vitamin K to 2, 3 and explose angle bothing of at an obtained, venous blood samples developed process of the status of the st

Prophylaxis	Day 5 (n=90)	After 2 weeks' enteral feeding (n=80)
0.5 mg IM (group 1: Control)	111.77(12.09-388.04)	2.52(0.53-33.17)
0.2 mg IM (group 2)	59.30(3.17-318.75)	1.57 (<0.05-6.79)
0.2 mg IV (group 3)	74.52(2.85-259.50)	1.28 (<0.05-6.23)

Values are median (range)

Values are median (mge) Compared with the control group, day 5 vitamin K concentrations were significantly lower in group 2 (p = 0.04), and at the time of established feeds they were lower in group 3 (p = 0.03). Three infants (one in group 2, it wo in group 3) had undetectable levels of vitamin K at the time of the second sample, however in each case PVKA-II was undetectable levels of micey (12%) infants (seven in group 1; four in group 3) had detectable concentrations of vitamin K epoxide on day 5 (p = 0.007). **Conclusions:** Preterm infants given 0.2 mg or 0.5 mg vitamin K q to trith have very high serum concentrations during the first week of life. The presence of vitamin K epoxide is significantly associated with a higher dose (0.5 mg) of vitamin K given IM and with a reduced dose (0.2 mg) given IV q, and may reflect vitamin K q voreload of the immature liver by these regimes of prophylaxis. With a reduced dose given IV or IM, vitamin K q and rafial to undetectable levels by a seartly as the fourth postnatal week. The risk of subsequent late VKDB may be increased in these infants unless further vitamin K

supplements are given.

RELATIONSHIP BETWEEN GASTROESOPHAGEAL REFLUX AND GASTRIC EMPTY-ING IN INFANTS <u>F CRESI</u>, F SAVINO, T VINCIGUERRA, C MARINACCIO, A TESTA, L DE SANCTIS, L SILVESTRO UNIVERSITY OF TURIN, DEP. OF PEDIATRICS, TORINO, ITALY

SANCITS, L SILVESTRO UNIVERSITY OF TURIN, DEP. OF PEDIATRICS, TURIN, TALY Background: Gastroesophageal reflux (GER) is a common and relevant clinical problem in infants. Relationships between GER and gastric emptying are still unclear. The multiple intraluminal impedance (MII) technique is based on the intraluminal measurement of electrical impedance between 6 electrodes during a bolus passage. On the basis of the temporal sequence of impedance changes, it can be identified whether a change in impedance is caused by a bolus moving in an antegrade (swallow) or a retrograde (reflux) direction. Epigastric impedance (EGI) is a technique to evaluate gastric emptying by measuring modifications in the impedance value in the gastric area by means of 4 skin electrodes. Aim of this study use is invariant the capitanetic between GEP and carefus appriction by multiple interluminal impedance and subjects of the second second

intraluminal 6 channel probe and by EGI (Akern) simultaneously. Data were collected for 180 min after the ingestion of a milk meal for two time for each patient. Refluxate events were detected by MII as impedance changes in the distal channels proceeded sequentially to the more proximal channels. From the epigastric impedance emptying curve was calculated for each refluxate event the level of gastric emptying and the emptying velocity (figure). Data were compared

calculate for each remuxate event in event of gastric emptying and the emptying velocity (ngure). Jata were compared by using Pearson correlation. **Results:** 18 simultaneously analysis were performed for a total of 54 hours recording. 163 refluxate events were detected. The average emptying time and the number of reflux events were respectively 132±34(minutes), 9.1±3.3(events) analysis). The frequency of refluxate events was significantly correlated with the emptying velocity (r=0.93; p<0.05). No correlations were found between GER and gastric emptying time or level of gastric emptying. **Conclusion:** Gastric emptying in GER infants has not a linear trend. Delayed emptying periods with an increasing endported argues are followed by field amplified particle and the demonstron of endputs to argue. This unrichility respect that

refluxate events are followed by fast emptying periods with decreasing of refluxate events. This variability suggests that a dismotility disorder interesting all the gastroesophageal tract might be relevant in infants affected by GER.



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CORD BLOOD IGF-2: RELATIONSHIP TO MACROSOMIA IN INFANTS OF GESTA-TIONAL DIABETIC AND NON-DIABETIC MOTHERS

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Secretion, Poland Background: Insulin and IGF-1 are considered as the main growth factors during fetal life. Both these factors were found accelerated in cord blood of LGA infants born to diabetic (IDM) and non-diabetic mothers. There is a few and not precise data about significance of IGF-2 in promoting of LGA. **Design:** to evaluate whether there is an association between occurrence of macrosomia and cord blood IGF-2 levels in infants of gestational diabetic and non-diabetic mothers. **Material and Methods:** The study material consisted of 74 LGA newborns (35 IDM and 39 non-IDM). 79 AGA neonates (37 IDM and 42 non-IDM) served as control groups. Gestational diabetes was recognized on basis of abnormal OGTT performed between 24–28 weeks of pregnancy. Macrosomia was defined as birthweight above 90th percentile. Gestational or GGA) in LGA regnet wares batworn 20. Al worker while in MGA neuros batware 31. Al worker. There are no cionified performed between 24-25 weeks on pregnancy, macrosonia was centred as on invergin above 50m performer. Obstantian age (GA) in LGA groups were between 30 - 40 weeks while in AGA groups between 31 - 43 weeks. There was no signifant difference in mean GA between LGA and appropriate AGA group. The anthropometric parameters such as: birthweight, body length, head and chest circumference were measured at delivery and compared between the groups. Cord blood was

body length, head and chest circumfreence were measured at delivery and compared between the groups. Cord blood was sampled and IGF-2 levels were estimated using specific ELISA. **Results:** Mean birth weight (4318g v. 4097g), length (59,2 v. 57,7 cm) and chest circumfreence (36,1 v. 35,7 cm) in non-diabetic LGA were significantly higher than in diabetic LGA, but there were no significantly different (indabetic circumfreence (36,3 v. 36,0 cm). Cord blood IGF-2 levels in both LGA groups was not significantly different (diabetic – 383,3 versus 362,3 ng/ml in non-diabetic). A significant correlation (r=0,32; p <0,05) between birthweight and IGF-2 levels in both LGA groups but not in AGA groups was found. The significant correlation between head icrumference and IGF-2 in diabetic (r=0,37; p < 0,03) but not in non-diabetic LGA was also found. There was no significant correlation between cord blood IGF-2 levels and other anthropometric parameters in all groups. There was also no significant **conclusion:** There is an association between occurrence of macrosomia and cord blood IGF-2 levels independently of

Conclusion: There is an association between occurrence of macrosomia and cord blood IGF-2 levels independently of maternal diabetes

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PROPHYLACTIC IBUPROFEN FOR THE PREVENTION OF INTRAVENTRICULAR

HEMORRHAGE IN PRETERM INFANTS : A MULTICENTER RANDOMIZED STUDY <u>C Dani<sup>1</sup></u>, G Bertini<sup>1</sup>, M Pezzai<sup>1</sup>, V Vangi<sup>1</sup>, P Guerrini<sup>2</sup>, C Martano<sup>3</sup>, F F Rubaltelli<sup>1</sup> <sup>1</sup>University of Florence, Department of Medical and Surgical Critical Care, Section of Neonatology, Florence, Italy; <sup>2</sup>University of Ferrara, Division of

(a) metata and angle characterized and the second previous previous of the second previo cerebral blood flow autoregulation and has been shown to protect neurological functions following oxidative stresses in an animal model. For these reasons we hypothesized that the prophylactic use of ibuprofen would reduce the occurrence of

Millian induct for user reasons a set of the Methods: We studied 155 intants with gestational age less than 28 weeks. The intants were randomly assigned at seven neonatal care units to receive buprofen (10 mg/kg, within 6 hours of life, followed by 5 mg/kg after 24 and 48 hours) or placebo. Serial echoencephalography was performed 24 and 48 hours after the initial cerebral ultrosound, on postnatal day 7, 15, 30 and at 40 weeks postconceptional age. Grade 1 IVH or no IVH was considered a successful outcome, while grade 2 to 4 represented failure. The rate of ductal closure, side effects, and complications were recorded. **Results:** Grades 2 to 4 1VH developed in 16% of the ibuprofen-treated infants and in 13% of the placebo group (p0.05). The occurrence of PDA was less frequent only on the 3rd day of life in ibuprofen group. There were no significant differences with respect to other complications or adverse effects.

Conclusions: Our study demonstrated that prophylactic ibuprofen is ineffective in preventing grade 2–4 IVH and that its use cannot be recommended for this indication. a