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## EFFECTS OF DIOXINS AND POLYCHLORINATED BIPHENYLS ON THYROID HORMONE STATUS OF PREGNANT WOMEN AND THEIR INFANTS.

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Dioxins and polychlorinated biphenyls (PCBs) are potentially hazardous compounds that can alter the thyroid hormone homeostasis as shown in animal studies. We investigated thyroid hormone levels in women around delivery and in their infants just after delivery, at 2 wks and 3 mths of age. Dioxin and PCB levels were measured in human milk and in maternal and umbilical cord plasma.

	Women in pregnancy		Women after delivery		Infant 2 wks	Infant 3 mths
N = 78	TT <sub>1</sub>	TT <sub>2</sub>	TT <sub>1</sub>	TT <sub>2</sub>	TSH	TSH
Dioxins	-.47**	-.35*	-.34*		.38**	.41**
Planar PCBs	-.39**	-.38**	-.33*		.37**	.31*
Non-planar PCBs	-.36**	-.33*	N.S.		.38**	N.S.

Spearman rank correlation test: \*p<0.01, \*\*p<0.001, NS=not significant. TT<sub>1</sub>=total triiodothyronine, TT<sub>2</sub>=total thyroxine, TSH=thyrotropic.

Conclusions: 1)TT<sub>1</sub> and TT<sub>2</sub> levels are negatively correlated to PCB and dioxin levels as can be found in the Dutch population. 2)TSH levels in newborns are significantly elevated at higher PCB and dioxin exposure. 3)These results indicate that PCBs and dioxins as found in the normal population have an effect on thyroid metabolism in humans.

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## MOLECULAR ANALYSIS OF Rb-1 SEGREGATION PATTERN IN FAMILIES OF CHILDREN WITH RETINOBLASTOMA

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The group of 95 retinoblastoma children from all around the Poland was ascertained from 1989 through 1993 by the Dept. of Ophthalmology and Dept. of Medical Genetics, Faculty of Medicine of Jagiellonian University. In this group 11 multiplex families were identified and molecular analysis of DNA of probands and their relatives was performed. Three independent methods were used: 1. Genetic segregation of Rb-1 locus with specific RFLP-s as genetic markers. 2. Analysis of XbaI polymorphism in intron 17 of Rb-1 gene using the PCR technique. 3. Analysis of polymorphic Rb 1.20 CTTT/T repeats. Results: All 11 families appeared to be informative by at least one of the above techniques, which made it possible to define the segregation pattern of the mutant allele within the families. The transmission of the mutant Rb-1 allele by affected parent was proved in 6 families and carrier status among the parents and siblings without any symptoms of the disease was found in 4 cases. In addition we were also able to rule out the presence of mutation in 8 cases. Conclusions: By means of these studies the risk prediction of retinoblastoma development for the probands' siblings and future offspring is possible. Based on this information, early clinical diagnosis and treatment is available what is of crucial importance for the final outcome.

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## ANALYSIS OF OSCILLATORY PRESSURE TRANSIENTS AFTER FLOW INTERRUPTION IN HEALTHY AND ASTHMATIC CHILDREN DURING BRONCHIAL CHALLENGE

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Postocclusionary oscillatory pressure transients after rapid flow interruption features additional parameters to the end-interruption resistance (Rint<sub>E</sub>). To detect changes in lung function during bronchial provocation tests in 10 healthy (age: 7-14 years) and 50 asthmatic children (age: 5-15 years) were studied. By such analysis the resonance frequency  $\omega_0$ , the damping factor  $d$  (time series), the resonance frequency  $F_{RS}$  and the amplitude at  $F_{RS}$ , the power factor  $A_{FS}$  (frequency series), can be obtained. Cumulative doses of inhaled carbachol (125, 250, 500, 750, 1000  $\mu$ g) were administered and the variance-based provocation dose (PD<sub>1/2</sub>) for  $\omega_0$ ,  $d$ ,  $F_{RS}$ ,  $A_{FS}$  and Rint<sub>E</sub> were calculated. Significant mean changes during bronchial challenge were obtained for Rint<sub>E</sub> 10.6  $\pm$  12.5 SD (53%) in healthy, 7.5  $\pm$  9.7 SD (54%) in asthmatics, and for  $d$  7.2  $\pm$  9.4 SD (53%) in healthy, 6.7  $\pm$  7.1 SD (45%) in asthmatic children respectively. With respect to sensitivity and specificity  $d$  was the most sensitive and specific parameter represented by a PD<sub>1/2</sub> at a lower threshold (68% at 345  $\mu$ g) than Rint<sub>E</sub> (62% at 708  $\mu$ g) for carbachol. Moreover, reversibility after 800  $\mu$ g salbutamol was better reflected by  $d$  (7.5 SD: p<0.001) than by Rint<sub>E</sub> (3.0 SD). Analysis of postocclusionary pressure transients after flow interruption could be a better estimate of the mechanics of the thoraco-pulmonary system, including the interaction of conducting properties of the airway and the inductive element given by the volume

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## INFLUENCE OF BODY POSITION ON APNEA, HYPOXEMIA AND BRADYCARDIA IN PRETERM INFANTS. W. Krämer, H. Stopfkuchen, R. Lippold\*

**Methods:** 20 preterm infants (mean 28wks; range 24-34wks gestational age, GA) with distinct instability during routine monitoring were studied in prone (PP) and supine (SP) sleeping position. In 45 polygraphic recordings (mean 8,9hrs PP/ 7,3hrs SP) we analysed 14829 events with regard to conceptional age at time of acquisition (group I:  $\leq$ 37wks/ group II:  $>$ 37wks), type and duration of event (central, obstructive, mixed apnea(A.), hypopnea, isolated bradycardia), effect on heart rate and arterial oxygen saturation (SaO<sub>2</sub>). **Results:** In group I (mean 34wks, range 31-37wks GA) A. density was identical in PP and SP (median: 46,7/h). In PP obstructive A. increased (PP 40%/ SP 34% of all events) and central A. decreased (PP48%/SP52%). Duration, mean heart rate and mean SaO<sub>2</sub> before an event and associated desaturation defined as fall  $\geq$ 3% of mean SaO<sub>2</sub> were similar. Hypoxemia associated with any type of resp. event was more frequent in SP (SaO<sub>2</sub> $\leq$ 85%: PP 19,4%/ SP24%; SaO<sub>2</sub> $\leq$ 80%: PP7,7%/ SP10,8%). In group II (mean 43 wks; range 38-55wks GA) A. density was reduced (PP32,8h; SP34,9h). Again obstructive A. was increased in PP (PP45,3%/ SP39,2%), while central A. did not reveal disparity (PP46,6%/ SP 46,4%). Compared to group I the number of bradycardias and desaturation in association with a respiratory event was lower. However bradycardias mainly occurred in SP (HR $\leq$ 100bpm: PP1,4%/ SP4,0%; HR $\leq$ 80bpm: PP 0%/SP1%). Desaturation ( $\geq$ 3%: PP26,5%/ SP 46,2%) and hypoxemia were more frequently noted in SP (SaO<sub>2</sub> $\leq$ 85%: PP 2,4%/ SP 7,3%;  $\leq$ 80%: PP1,4%/ SP2,9%). **Summary:** Positioning influenced the incidence of A., hypoxemia and bradycardia. In PP obstructive A. were more common (p=0,06). In contrast to other studies we found that hypoxemia (SaO<sub>2</sub> $\leq$ 85%: all events p=0,01; central A. p=0,001) and with increasing conceptional age bradycardias were more frequent in SP. **Conclusion:** 1. When positioning unstable preterm infants, consider possible effects on cardiorespiratory regulation. 2. Evaluation of pneumograms must include the position of the infant. NICU and Statistic Instit. \*Mainz University, Germany.

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## HIGH FREQUENCY OF CLASSICAL 21-HYDROXYLASE DEFICIENCY (CAH) IN MALAYSIA. Loo L WU, Gabi Krob\*, Janine Pekarak\*, Ben S Hasri, Ursula Kuhnle. Department of Pediatrics, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia, and \*Universitaetskinderklinik, Muenchen, Germany

Neonatal screening programs in caucasian populations of Europe, North America, New Zealand as well as in Japan have established the incidence of CAH to be on an average 1:14,000, with few exceptions (native Alaskan and inhabitants of the island Le Reunion), where a founder effect and a relative isolation has contributed to a higher incidence. So far no evaluation of CAH in a tropical country is available.

We have performed a case survey in Kuala Lumpur (KL) using the birth rate of the Maternity Hospital- and the patients referred to the Pediatric Endocrine Unit of the General Hospital, KL. The overall incidence rate was 1:3,000 with appr. equal distribution among the Malay, Chinese and Indian populations, comprising 57%, 16%, and 13%, respectively. This unexpected high incidence of a potentially salt-wasting disorder in a tropical country can only partially be explained by consanguinity which is frequent in the Malay- and Indian-, but not in the Chinese community. An as of yet unknown, selective advantage of the heterozygote state has to be speculated.

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## THE DIAGNOSIS OF PAEDIATRIC VOCAL CORD DYSFUNCTION (VCD).

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VCD in children is a poorly recognised entity, easily confused with asthma. Thirty-seven children with a diagnosis of VCD made by rhinolaryngoscopy were identified. Eight of 29 patients diagnosed with both VCD and asthma were evaluated during attacks of VCD (defined by rhinolaryngoscopy) or asthma (defined by a positive methacholine challenge). We examined retrospectively the value of clinical assessment, spirometry and blood gas analysis in differentiating between episodes of VCD and asthma in these patients. Laryngeal stridor was the most reliable clinical feature that distinguished VCD from asthma, occurring in 6/8 episodes of VCD and 1/8 episodes of asthma. The presence or localisation of expiratory wheezing was not helpful. Spirometric data did not reliably distinguish VCD from asthma, although inspiratory loop truncation occurred during 4/8 episodes of VCD and not during asthma. The mean arterial oxygen level, though lower in asthma than in VCD, did not reliably differentiate between both conditions. However, the calculated alveolar-arterial (A-a) gradient was narrow during all episodes of VCD (mean = 6.75 mm Hg) whereas it was widened during all episodes of asthma (mean = 20.3 mm Hg). We conclude that VCD occurs in children and frequently coexists with asthma. Episodes of VCD and asthma are not reliably distinguished in children by clinical and spirometric evaluation. Rhinolaryngoscopy is therefore necessary to establish a diagnosis of VCD. Subsequent episodes of VCD may be reliably distinguished from asthma by a normal A-a gradient.