155 EXPRESSION OF THE INSULIN-LIKE GROWTH FACTOR-II/MANNOSE-6-PHOSPHATE RECEPTOR IN FETAL BOVINE TISSUES.

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IGF-II and the IGF-II/M6P receptor are thought to play an important role in fetal growth and development. We have studied the expression of the IGF-II/M6P receptor in fetal bovine tissues from 5 weeks through 36 weeks gestation.Tissues from bovine fetuses were extracted in buffer containing 2 % Triton-X-100 and 2 % SDS. Aliquots of the protein extracts were analysed by SDS-PAGE and the protein bands were transfered onto nitrocellulose. Immunoblotting was performed using anti-IGF-II/M6P receptor antiserum. In a subset of experiments, ligandblotting was carried out using radiolabeled IGF-II and subsequent autoradiography. IGF-II/M6P receptors were expressed in all tissues examined, with the highest amount of receptor being present in fetal lung and liver. Low amounts of receptors were measured in fetal brain.The amount of receptor was developmentally regulated throughout fetal life. Developmental regulation of receptor expression varied among the different tissues. In conclusion, the IGF-II/M6P receptor is developmentally regulated during bovine fetal life. We hypothesize that this receptor exerts important biologic effects during fetal development. (supported by DFG grant , Ki 365 1.1).

156 SODIUM-LITHIUM COUNTERTRANSPORT ACTIVITY IN DIABETICS AND THEIR PARENTS

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We evaluated the activity of sodium lithium countertransport (SLC) in red cells of 32 diabetic children with persistent microalbuminuria (overnight Albumin Excretion Rate >30 ug/min/1.73 m^2), of 32 normoalbuminuric diabetics and 32 non-diabetic matched children. SLC was significantly higher in diabetics with microalbuminuria (mean±SD, 0.47 ± 0.18 mmol of lithium/l of red cells/hour) than in diabetics without microalbuminuria (0.31 ± 0.15; $p<0.01$) and in normal children (0.32 ± 0.16; $p<0.01$). Mean Blood Pressure (MBP) was higher in microalbuminuric diabetics than in normoalbuminuric ones and in healthy controls. SLC and MBP were significantly increased in parents of diabetics with incipient diabetic nephropathy, while they were in the normal range in parents of both normoalbuminuric IDDM patients and normal children.
The predisposition to hypertension, indicated by high SLC and MBP, is evident in patients with persistent microalbuminuria.

157 COMPARISON OF VIP-STIMULATED CHLORIDE SECRETION AND PROTEIN PHOSPHORYLATION IN ISOLATED RAT COLONIC CRYPTS AND CACO-2 CELLS

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Collumnar cells in epithelial crypts are responsible for secretion of chloride and water in the intestine but the terminal cellular effectors of the secretory mechanism remain unknown. We comparatively assessed VIP-induced chloride channel activity and protein phosphorylation in crypts, freshly isolated from the rat colon, and in the human tumor cell-line Caco-2. Chloride channel function was determined by measuring fluxes of $^{125}I^-$, a halide tracer well suited for probing chloride secretion, since it enters and leaves polar epithelial cells exclusively via apical membrane chloride channels. Basal and VIP-stimulated (200 nM) uptake showed similar kinetic behaviour in both cell types with VIP decreasing uptake by 70%. In crypts, the chloride channel blocker 4,4'-diisothiocyano-2,2'-stilbenedisulfonate (DIDS) completely inhibited iodite uptake at 50 uM concentration whereas in Caco-2 cells DIDS had only a minor effect. 200 nM VIP also induced phosphorylation of 16, 42 and 55 kDa proteins in both cell types, and several other proteins, that differed between the two cell types. The data suggest that 1.VIP-induced chloride channel activation may be dependent on phosphorylation of specific proteins, and 2. chloride channel types activated by VIP may be different in crypts and Caco-2.

158 IN VITRO ACUTE RELEASE OF SOMATOSTATIN FROM RAT HYPOTHALAMUS : EFFECT OF IL-1

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The cause of growth velocity decrease in children affected by chronic inflammatory diseases is unknown.The response to infection involves production of Interleukin-1β(IL-1), from monocyte cells. The study is aimed at examining the effect of IL-1 on acute release of somatostatin(SS) from rat hypothalamus, and the intracellular mechanism involved. Hypothalami from male Wistar rats were incubated with IL-1 and medium assayed for SS by RIA. IL-1(1-10 U/ml) increased the release of SS (Tab.1).

TABLE 1	TABLE 2	TABLE 3	TABLE 4
BASAL 88.7±12.2	BASAL 112.9±9.8	BASAL 190.1±20.6	BASAL 229.2±15.6
IL-1 1U 247.3±24.4*	IL-1 10U 349.4±23.6**	IL-1 10U 1135±43**	IL-1 10U 818±87**
IL-1 5U 260.9±31.2*	NAPO.1 269.3±41.8*	BW775 1 449.6±48.8*	BWA4C 1 709±76**
IL-1 10U 376±56.1**	NAP 1 119.6±17.5	BW775 10 226±18.1	BWA4C10 814±135**

SS is expressed as pg/hypothalamus/20 min. ; *= $p<0.01$, **=$p<0.001$
The production of SS by IL-1 was inhibited by the cyclo-oxygenase inhibitor, naiproxen (NAP) (Tab.2) and by the cyclo-lipo-oxygenase inhibitor BW775 (Tab.3), but not by the lipo-oxygenase inhibitor BWA4C (Tab.4). The inhibitors are expressed in μg/ml. IL-1 is a potent stimulator of SS; the intracellular mechanism involved in this action is via cyclo-oxygenase pathway. This action of IL-1 suggest an explanation for the paradoxical GH-responses to TRH in some short children with chronic diseases.

159 BIOCHEMICAL PARAMETERS OF BONE MINERAL METABOLISM IN VLBW INFANTS ON A PRETERM FORMULA OR FORTIFIED OWN MOTHER'S MILK

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One aim of human milk fortifiers (HMF) is to adapt Ca and P intake to the needs of VLBW infants. We compared Ca- and P-metabolism in VLBW infants either fed own mothers milk (OMM) with HMF (FM-85^R, Nestlé) or fed preterm formula (F) (Prematil^R, Milupa) according to ESPGAN. In 30 VLBW infants (birth weight 570-1540 g) serum Ca (S_{Ca}, mg/dl), P (Sp, mg/dl) alk. phosphatase (AP, U/l) and urinary Ca (U_{Ca}) and P (U_P) excretion (mg/kg/d) were measured when oral energy intake exceeded 100 kcal/kg/d (M_1) and 2 weeks later (M_2). HMF was given after M_1. Random samples of OMM + HMF (n=13) and of F (n=3) were analysed: Ca 66±19 mg/dl vs 39-63 mg/dl, P 39±8 mg/dl vs 33-34 mg/dl. At M_2 the results in 13 infants (1760±253 g) fed OMM + HMF and 17 infants (1825±281 g) fed F were (* $p < 0.05$, U-test):

	S_{Ca}	S_P	AP	U_{Ca}	U_P
OMM + HMF	9.91±0.59	6.3±0.8	912±325	10.6±6	6.1±5
F	8.96±0.34*	6.8±0.6	637±164*	1.9±1.4*	17±5*

Conclusion: Despite e. g. a lower birth weight of the group fed F and an inconsistent Ca content of F the group fed F showed a better profil of biochemical markers at M_2. Composition and time of first feeding HMF needs improvement.

160 VITAMIN D METABOLITE LEVELS IN CHILDREN

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The purpose of the present study was to investigate the serum levels of the three vitamin D metabolites (25OHD, $24,25(OH)_2D$ and $1,25(OH)_2D$) and osteocalcin in children aged 11-18 years during the summer and winter months. Two groups of twenty children each, were studied. The results are shown on the table:

Age (yrs)	Season	25OHD (ng/ml)	$24,25(OH)_2D$ (ng/ml)	$1,25(OH)_2D$ (pg/ml)	Osteocalcin (ng/ml)	Ca (mg/dl)
11±4	Summer	26.5±2.4*	2.39±0.35*	30.4±2.3*	9.94±1.65	9.4±0.2
10±4	Winter	19.4±2.1	1.60±0.21	23.1±2.3	7.80±1.07	9.6±0.2

*$p<0.05$. The comparison has been made between the two groups.

Our findings demonstrate that the levels of 25OHD and $24,25(OH)_2D$ are higher in the summer than in winter($p<0.05$) and are consistent with previous reports. In 4/10 children aged 10-18 yrs, 25OHD levels were found to be reduced significantly during the winter months(<10ng/ml). Similar seasonal variations were observed in the levels of $1,25(OH)_2D$ ($p<0.05$), which was more pronounced in the older children (>11yrs). Although the osteocalcin concentrations were in general lower during winter, these findings were not statistically significant. Whether supplementation of vit.D during the winter months would have a beneficial effect on the growth of the older children (11-18yrs) is a matter that is presently under investigation.