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SERUM PREALBUMIN AND β2-MICROGLOBULIN VALUES IN THE DIAGNOSIS OF NEONATAL SEPTICEMIA

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The aim of this study was to diagnose Neonatal Septicemia by determining serum prealbumin levels as a negative acute phase reactant and serum β2 microglobulin concentrations, a questionable acute phase reactant. Twenty healthy newborn babies as the control group and 20 term newborn babies with septicemia were included in the study. Serum concentration of prealbumin showed a significant ($p < 0,001$) decrease in the sepsis group compared with the control group. It had a sensivity rate of % 85, specifity rate of % 95, positive predictive value of % 94 and negative predictive value of % 91. Serum β2-microglobulin levels were significantly ($p < 0,001$) higher in the sepsis group than in the control group, yet it had lower sensivity, specifity and positive, negative predictive values compared with the prealbumin values, respectively % 65, % 90, % 86 and % 72. Since serum prealbumin assay is an easily-established and reliable test, we conclude that serum prealbumin determination can be an important ait in the diagnosis of neonatal septicemia.

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BENZATHINE PENICILLIN IN ALVEOLAR LOBAR AND SEGMENTAL PNEUMONIA: a controlled clinical trial(*)

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Objective: to assess the efficacy of benzathine penicillin(BP)for treating presumedly pneumococcal alveolar lobar/segmental pneumonia(ALSP)as compared to procaine penicillin(PP), in Belo Horizonte, Minas Gerais State, Brazil.
Methods: criteria inclusion were a)2-12 years old,b)clinical and radiological diagnosis of ALSP,c)no prior antibiotic and d)no severe concomitant disease.The BP and PP treatments were randomized in two groups and the regimens were one single dose of BP and seven days of PP.Efficacy was assessed by clinical and radiological improvement in the 7th and/or 14th day after admission.The interpretation of chest films were made in a blindness fashion.Statistical analysis included the Fischer's Exact Test(sign.level:.05).
Results:116 patients had been included in the study;63(54,3%)were allocated to BP and 53(45,7%)to PP groups. 90,5% of the patients in the BP group and 94,3% in the PP group presented clinical and radiologic improvements(p=.505).
Conclusions:a)BP treatment was as efficacious as PP treatment for ALSP in this study;b)due to high morbidity and mortality of pneumonia in the Third World,the low cost and excellent compliance of BP,this regimen may be an important alternative for internationally accepted PP regimen;c)more precise estimates with improved power will be generated by higher numbers as the study continues.
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TUMOR NECROSIS FACTOR alpha(TNF-alpha) IN NEONATAL SEPTICAEMIA

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There is a sufficient amount of data that TNF-alpha, the monokine produced by macrophages after bacterial stimulation might be an important factor responsible for irreversible tissue damage during the septic shock. In an attempt to elucidate the possible function of TNF-alpha in the pathomechanism of sepsis the assesment of TNF-alpha activity in the blood of newborns with bacterial septicaemia was performed. A sample of 21 newborns with sepsis (13 with Staph.epi., 1 with Staph.aur., 7 with G(-) bacteria) was studied. A group of 22 infection-free infants matched by gestational age, birthweight and sex, were used as a controls. TNF-alpha in the blood was determined by ELISA method. For statistic analysis a non-parametric (Wilcoxon) test was used.

Results: group	n	TNF-alpha (pg/ml)
A: Sepsis G+	14	3872 (202-9846)
B: Sepsis G-	7	1645 (78-9986)
C: Control	22	113 (0-871)

Comparisons: A:B ($p < .025$), A:C ($p < .001$), B:C ($p < .005$)
Conclusions: 1. Infants with G(+) and G(-) sepsis reveal significant activity of TNF-alpha in their blood. 2. G(+) bacteria seem to be more potent stimulator of TNF-alpha production in vivo than the G(-) ones.

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NEW ANTIFUNGAL DRUGS IN THE PRETERM NEONATE: PHARMACOKINETICS OF KETOCONAZOLE AND ITRACONAZOLE

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The increasing use of invasive procedures, antibiotic and immunosuppressive treatments has caused an increase in candidal infections which has led to a search for new antifungal drugs. In our earlier studies (1) ketoconazole (keto), an oral antifungal agent, proved not to be useful in preterms. The absorption of keto was probably prevented due to a combination of low gastric acidity and continuous gavage feeding. We now investigated the bioavailability of itraconazole (itra), also an oral antifungal agent with broad spectrum activity and low toxicity, in preterm infants with a postconceptional age below 32 weeks. Trough and peak serum levels of itra (R51211) and its metabolite (R63373) were measured in 5 preterm infants 48h after initiating therapy with a dose of 5mg/kg of itra in hydroxypropyl-beta-cyclodextrin solution by HPLC-assay.

	itra	R63373
trough level(ng/ml)	28-264	85-588
peak level (ng/ml)	129-547	178-660

We conclude that (2) itra is well absorbed and recommended levels are reached. No side effects of itra were seen. It may be a useful antifungal drug in preterms, but further studies on efficacy and safety are needed.

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THE CHYMOTRYPSIN INHIBITOR CARBOBENZYLOXY-LEUCINE-TYROSINE-CHLOROMETHYLKETONE (zLYCK) INTERFERES WITH THE NEUTROPHIL RESPIRATORY BURST MEDIATED BY A SIGNALING PATHWAY INDEPENDENT OF $PtdInsP_2$ BREAKDOWN AND CYTOSOLIC FREE CALCIUM

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The effects of cbz-leucine-tyrosine-chloromethylketone(zLYCK), an inhibitor of chymotrypsin, were investigated in the activation pathways of human neutrophil respiratory burst. At 10 μM zLYCK showed a parallel inhibition of superoxide production stimulated with the chemoattractant formyl-methionyl-leucyl-phenylalanine (FMLP) and chymotrypsin-like activity of human neutrophils. By contrast superoxide production induced by phorbol mirystate acetate (PMA) was minimally affected by zLYCK. The known transduction pathways triggered by FMLP were analyzed. zLYCK did not affect either FMLP-induced cytosolic free calcium transient, inositol 1,4,5 triphosphate formation nor the PMA-induced phosphorylation of the 47 kD substrate of protein kinase c. zLYCK did not affect the activity of protein kinase c extracted from neutrophils. The activity of the NADPH oxidase tested with active membranes from stimulated neutrophils or in a cell-free-system was not inhibited by zLYCK. We conclude that 1) zLYCK inhibits superoxide production through the inhibition of a chymotrypsin-like protease of the neutrophil 2) zLYCK inhibits FMLP-induced activation of NADPH oxidase through a pathway independent of $PtdInsP_2$ breakdwon and cytosolic free calcium 3) zLYCK may prove an useful probe for the characterization of its target protease in neutrophil activation.

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TREATMENT OF SEVERE INFECTIOUS PURPURA IN CHILDREN WITH HUMAN PLASMA FROM DONORS IMMUNIZED WITH *ESCHERICHIA COLI* J5: A PROSPECTIVE, DOUBLE BLIND STUDY

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Immunotherapy with serum obtained from immunized volunteers with *Escherichia Coli* J5 vaccine was shown to decrease the mortality from Gram-negative shock. We analyzed the effect of anti-J5 plasma on the course and mortality of severe infectious purpura. Patients with a clinical diagnosis of sepsis wiwth purpuric lesions were enrolled if they were in shock. They received either anti-J5 plasma or control plasma. Before the administration of the plasma, 6 hours after and after 5 days of evolution, serum levels of anti-J5 antibodies, tumor necrosis factor alpha (TNF), interleukin-6 (IL-6) and elastase-α1-antiprotease complexes were determined. 73 patients were randomized, 40 in the anti-J5 and 33 in the control group. Clinical and biological risk factors were similar in the two groups. However, TNF serum concentrations were 974±173pg/ml versus 473±85pg/ml, (p=0.023) and IL-6 serum concentrations were 129±45 versus 19±5ng/ml, (p=0.005) in the control group and in the treated group respectively. The duration of hypotension, of vasopressor therapy and of respiratory assistance and the occurrence of systemic complications were similar in the 2 groups. The mortality rate was 36 % in the control group and 25% in the treated group (p=0.317), (risk ratio:0.58;95% confidence interval:0.19-1.79). This trend disappeared after correction for imbalances at randomization using a logistic regression model. Anti-J5 plasma did not change the course and the mortality of severe infectious purpura in children.