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ACTIGRAPHIC MEASUREMENTS OF MOTOR ACTIVITY AND SLEEP-WAKE CYCLE IN HOSPITALIZED INFANTS

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Introduction: The infants may alter their motor and sleep-wake profile, during a hospitalization due to an acute disease.

Objective: To describe the motor activity profile and sleep-wake cycle of infants hospitalized due to a respiratory disease.

Subjects and Methods: We prospectively evaluated 17 infants, 6-12 months of age, with normal nutritional status, both gender, admitted to a Pediatric Public Hospital, because a low respiratory tract infection and respiratory failure. Starting on the first morning after admission, an actigraph was placed at an ankle for 24 h.; they also were directly watched by one observer, registering hourly: motor spontaneous activity, procedures and sleep. The actigraphic information saved was voided to a computer program and analyzed.

Results: Duration of nocturnal sleep (20-06 h) was 362 min (210-550) and of diurnal sleep (06-20 h) was 213 min (59-268). Range of diurnal activity was 266-779 min and nocturnal activity was 45-300 min.

Conclusions: The actigraphic information is sensible to detect motor activity and evaluation of sleep-wake cycle in hospitalized infants. There is a wide variability between infants in the duration of motor activity and sleep. There is concordance between the actigraphic registration and the direct observation of activity.

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YIELD OF STOOL CULTURES AND LATEX AGGLUTINATION FOR ROTAVIRUS IN CHILDREN WITH ACUTE DIARRHEA IN A DEVELOPING COUNTRY

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Objective: To assess the performance of stool culture and a rotavirus diagnostic test in children with acute diarrhea attending an emergency hospital in a developing country.

Methods: Stool microbiologic results were reviewed for fecal samples of children from 0 through 18 years old attending the Hospital de Emergencias Pediátricas, Lima, Peru, from January through September 2002.

Results: Overall, 522 underwent stool cultures. Positive cultures were obtained in 223 samples (43%) and 299 were negative. A latex agglutination test for rotavirus was performed in 225 samples, and 87 were positive (38.6%). The most frequently isolated enteropathogens included *Shigella flexneri* (32.3%), *Shigella sonnei* (19.7%), *Campylobacter* sp (16.6%), enteropathogenic *E. Coli* (7.3%), enteroinvasive *E. coli* (3.1%), *Salmonella enteritidis* (3.1%), others (6.7%). Co-infection with two pathogens was obtained in 23 stool cultures (10.3%) and three pathogens were identified in 2 subjects (0.9%).

Discussion and conclusions: The performance of stool culture was substantially higher than in other series from developed and developing countries. Prevalence of rotavirus was similar to other reports. The frequency of co-infection was lower than previously reported. The comparatively higher performance of stool culture may be explained by the short time between the sampling and culture of stools and by a more comprehensive diagnostic approach in the study hospital, which is relatively smaller, with more efficient processes than a large, overburdened hospital.

Key words: stool culture, rotavirus, diarrhea, diagnosis, microbiology, acute diarrhea.

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INHIBITION OF IRON ABSORPTION BY ZINC

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Background. Iron and zinc deficiencies are the most common nutritional deficiencies worldwide. Supplementation is one of the strategies utilized to prevent these deficiencies. Because divalent cations share the same enterocyte transporter, there is an increasing concern about potential negative interactions between these two microminerals.

Objective. To measure the dose-response effect of zinc, given in a solution, on iron absorption.

Methods. Twenty-two healthy adult women were selected to participate in two iron absorption studies. One group of women received a solution with 0.5 mg of elemental iron, as ferrous sulfate, given alone and with zinc, as zinc sulfate, in molar ratios Zn:Fe 0.5:1, 1:1, 2:1; the other group received a solution with 0.5 mg of iron given alone and with zinc in molar ratios Zn : Fe 5:1, 10:1 and 20:1. The double radioisotopic technique was used to measure iron absorption. Iron absorption values were referred to the iron absorption of the solution without zinc.

Results. Both groups had comparable iron nutrition status. No significant effect of zinc on iron absorption occurred at Zn:Fe molar ratios up to 2:1. Among 5:1, 10:1 and 20:1 molar ratios, a dose dependent inhibitory effect on iron absorption was observed (28 to 40 % of iron absorption inhibition; ANOVA for repeated measures, $F = 4.476$, $p = 0.01$).

Conclusion. Zn negatively affects iron absorption at Zn: Fe molar ratio equal or higher to 5:1. Supported by Fondecyt grant 1040879.