25 SEIZURES AS THE CARDINAL SYMPTOM OF URINARY TRACT INFECTION IN INFANTS.

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Seizures are listed among the symptoms of UTI but little attention has been paid to their diagnostic significance. An attempt was made to define whether seizures could be the cardinal or sole symptom of UTI. 211 infants aged 1-24 months admitted to our department because of an episode of seizures have been examined for UTI. Other causes known to be responsible for seizure activity were rule out after appropriate testing. 39 infants (18.5%) grew $>10^5$ colonies in 3 consecutive urine cultures. Urine cultures in 100 controls were sterile. 23 out of the 39 infants were febrile. Therefore, febrile convulsions could not be excluded in 16 (>6 mos old). Definite association between seizures and UTI was found in 16 (7.6%) who were afebrile. VUR was diagnosed in 1/3 of the cases. We suggest that all children presenting seizures of unknown etiology regardless of the presence or absence of fever should be evaluated for UTI.

26 UTI DURING THE FIRST YEAR OF LIFE IN A GÖTEBORG AREA 1977-79. I: BACTERIA FOUND AT SCREENING

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Purpose: To study bacteriuria in a defined population with special emphasis on asymptomatic infections. Methods: All newborn infants in the area were offered screening at 2 weeks, 3 and 10 months of age. Bacteriuria was confirmed by bladder puncture. Radiology and tests for level diagnosis were performed. Bacteria were analysed for virulence factors. No treatment was given if the child was asymptomatic and no signs of renal involvement were found. Results: From Oct 1977 to Dec 1979 2746 2-weeks old infants entered the study (96% participation). So far 2173 have been screened also at 3 months and 1269 at 10 months of age. Bacteriuria was confirmed in 31 boys (2.7%) and 8 girls (0.7%), in all cases without symptoms. Among the boys none had signs of renal involvement, 2 had reflux without dilatation. So far all have spontaneously cleared the bacteriuria before one year of age without any recurrences. One girl had scarred kidneys on IVP and was treated. The other girls became spontaneously free from bacteria within 6 months of diagnosis. 2 had asymptomatic recurrences. Conclusion: Asymptomatic bacteriuria during infancy was mostly transient. Renal involvement was rare. Screening for bacteriuria among healthy infants does not seem motivated.

27 UTI DURING THE FIRST YEAR OF LIFE IN A GÖTEBORG AREA 1977-79. II: SYMPTOMATIC INFECTIONS

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Purpose: To study symptomatic UTI occurring in the infants screened for bacteriuria (part I). Methods: All children with acute UTI in Göteborg are treated and followed at the Dept of Pediatrics. Therefore acute UTI in infants below 12 months of age participating in the bacteriuria screening program could be studied in a standardized way including bladder puncture, tests for level diagnosis and radiology. Bacteria were analyzed for virulence factors. After treatment all patients were checked regularly. Results: 28 infants (16 boys, 12 girls) had acute UTI during the period. None of them had bacteriuria at the previous screening. 19 had signs of acute pyelonephritis whereas 9 had various symptoms but no indications of renal involvement in different tests. Radiological changes were found only in the patients with acute pyelonephritis. 2 infants had renal scarring combined with gross reflux. Reflux without dilatation was seen in 5 patients. In vitro attachment to uroepithelium was greater in bacteria isolated at symptomatic infections compared to bacteria found at screening. Recurrent pyelonephritis occurred in 4 patients (3 with reflux) and asymptomatic bacteriuria in 8 (all with normal X-ray). Conclusions: Symptomatic UTI in infants was not associated with screening bacteriuria but asymptomatic bacteriuria was common as recurrence after symptomatic infections. Radiological changes were found only in patients with acute pyelonephritis.

28 THE PREVALENCE OF ASYMPTOMATIC BACTERIURIA(A.B.U.) IN SCHOOLAGES

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We have examined the prevalence of asymptomatic bacteriuria on 4238 cases of children ages 3-15. In the first screening of our test, the presence of 10^4 or more organisms per milliliter of urine on the dipslide was taken as a positive finding, using the reagent strips for bacteriuria, Microstix-3(Ames.). If the first test was positive, two more tests were repeated by midstream semiquantitatively cultured at our hospital. According to the result gained in the examination, ABU was detected at the frequency of 1.5-2.0% of the examined cases, without difference of ages and sex. When we performed intravenous pyelography(IVP) on the whole detected cases of ABU, we could get abnormal findings of 49% in the 10^5/ml group, and 11% in the 10^4/ml group.

We can conclude that the most reliable method is the culture method, because ABU is rarely accompanied by abnormality of urinalysis and that chronic pyelonephritis should be prevented by the operation of mass-screening urinalysis of ABU at the age of 4-6 and the active treatment of the detected ABU.

29 INVESTIGATION AND FOLLOW-UP OF 282 GIRLS WITH RECURRENT URINARY TRACT INFECTION (UTI).

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During 12 years, 282 girls were referred at age 3.4±3.8 (SD)yr, following 2 or more UTI. Of 266 investigated, 100 (38%) had vesicoureteric reflux (VUR), bilateral in 45. Radiologic pyelonephritis (PN) was found in 29% c. and 2.4% s. VUR. Other findings were: UP junction stenosis - 8, bladder diverticulum -17, meatal stenosis - 2, double ureter (DU) - 22 (8%). Mean referral time was 0.5 yr after first recognised UTI and unrelated to VUR or PN. Average follow-up was 4.1±3.1 yr; 55% and 45% respectively were followed 5 and 10 yr or until "cure" (2 yr s. UTI, normal radiology). Symptoms were systemic in 15% (more common c. VUR - p=0.01), local in 15%, absent in 70% of all UTI. Frequency of UTI diminished by 15% yearly; annual "cure" rate (2 yr s. UTI) was 9.5% in first 5 yr, 6.5% therafter and unrelated to VUR. Nitrofurantoin (61 patients), thrimethoprim/sulfa (59) and nalidixic acid (52) were equally effective, reducing UTI by 75%. VUR resolved spontaneously in 61% (rarely in grade III, IV or DU) and following surgery in 20%. Radiologic PN remained unchanged in 13, deteriorated in 12; 13 developed new PN - 9 c. and 4 s. VUR. GFR, BP, height and weight percentiles showed no significant differences c. or s. PN or VUR - no hypertension and only one abnormal GFR were seen.

30 PERIURETHRAL ANAEROBIC MICROFLORA IN UTI-PRONE AND HEALTHY GIRLS.

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Periurethral (PU) colonization with uropathogens is a well-documented stage in the development of urinary tract infections (UTI). As part of a study of the pathogenesis of UTI, we examined the periurethral ecological niche by studying the anaerobic and aerobic bacterial floras in 18 healthy and 11 UTI-prone girls. Established bacteriological anaerobic procedures were used. The periurethral microenvironment turned out to be a distinctive ecological niche, separate from the fecal and skin biotas but with some characteristics in common with the vaginal flora. About 10^5–10^6 viable counts/cm^2 of PU area were found, anaerobic bacteria constituting about 90 % of total viable counts. An average of 7 anaerobic and 3 aerobic types of strains were isolated per specimen. The UTI-prone girls revealed an increased colonization with anaerobic gram-negative rods, mainly bacteroides, as compared to healthy girls, both quantitatively, expressed as percentage of total viable counts/cm^2 ($p < 0.01$) and in terms of average numbers of different species per specimen ($p < 0.01$). Preliminary results suggest that the increased bacterial adhesive ability of PU mucosal cells from UTI-prone females, previously shown with E. coli, may also be applicable to bacteroides. Other matters to consider are interference by the indigenous PU flora as a possible mechanism to control the establishment of uropathogens and the role of chemotherapeutics as a possible cause of disturbances in the periurethral ecological balance.