

# ADOLESCENT MEDICINE

## 1 CHLAMYDIA TRACHOMATIS (C.t) IN ADOLESCENT FEMALES, Trina M. Anglin, Raynorda F. Brown, Mary L. Kumar, Case Western Reserve Univ. School of Med., Cleveland Metro. Gen. Hosp., Dept. of Ped., Cleveland (Spon. by I. Schafer)

C.t is an important cause of sexually transmitted disease (STD) in adults and has been implicated as a cause of salpingitis and perihepatitis. As limited data are available regarding C.t in adolescents, 75 sexually active female teenagers were studied to determine the prevalence of C.t and other STD's including trichomonas, gonorrhoea, herpes simplex (HS), syphilis, as well as cytomegalovirus (CMV). Relevant data were obtained on study patients to determine clinical patterns of C.t infection in this age population and possible relationships with other STD's. Cervical and/or urethral cultures from 17 subjects (23%) were positive for C.t; other pathogens identified were trichomonas (13%), CMV (12%), N. gonorrhoeae (11%) and HS (3%). 16% were infected with 2 or more agents. Tabular analyses revealed no relationship between C.t infection and the following variables: age, contraceptive method, number of recent sexual partners, parity, catamenia, history of STD, another simultaneously diagnosed STD and presence of CMV or HS-2 antibodies. 7 C.t(+) subjects were asymptomatic and abnormal physical findings in 10 occurred in association with other common STD's. C.t antibody was not detectable in all C.t(+) subjects. These data demonstrate C.t is a common STD in adolescence which cannot be diagnosed on the basis of symptoms or physical exam. As C.t is a STD with potentially serious sequelae, screening by appropriate culture should be considered in sexually active female teenagers.

## 2 BODY COMPOSITION CHANGES IN OBESE ADOLESCENTS ON A PROTEIN SPARING MODIFIED FAST. E.H. Archibald, J. Harrison, P. Pencharz. (Spon: T. Heim) Research Institute, Hospital for Sick Children, Toronto, Ontario, Canada.

Weight reduction involves loss of both Lean Body Mass (LBM) and adipose tissue. Total Body Potassium (TBK) has been used to estimate LBM, but is an unreliable predictor of Total Body Nitrogen (TBN), and therefore, of body protein in the undernourished. 17 obese adolescents, 12.5-17.5 yrs, weight >150% Ideal Body Weight (IBW), (70-126 kgs) were followed over a 3-month period on a diet of lean meat, fish and poultry (2.5 g protein/kg IBW/d, and 900 kcal/d). Body composition was assessed by estimating Fat Free Body Mass (FFBM) from 4 skinfold thickness, and LBM as derived from 40K, or from TBN by neutron activation.

	Wt(kg)	FFBM(kg)	TBK(g)	TBN(kg)
Initial	86.5	53.1	117	1.78
Final	73.3	49.2	101	1.70
% Change	15.2	7.4	13.6	4.2

Potassium supplements, 75-100 mEq/d, did not reduce TBK loss, which was biphasic, with significant falls at 2 wk and at 10 wk. There was a significant correlation ( $p < 0.005$ ) between TBK and TBN. There was no relationship between change in TBK and change in body weight nor in LBM as estimated from TBN. The N/K ratio was 12.0-17.4 g/g. A substantial fall in TBK with relative sparing of TBN was demonstrated. The biphasic nature of the TBK loss may explain the late and unexpected deaths reported on Liquid Protein Diets. The wide range of N/K ratios confirm that TBK cannot be used to predict TBN in a changing nutritional state.

## 3 ESTIMATED RISKS OF SEXUALLY TRANSMITTED DISEASES AMONG ADOLESCENT FEMALES. Thomas A. Bell, David A. Eschenbach, King K. Holmes. University of Washington Schools of Public Health and Community Medicine; Medicine. Departments of Epidemiology; Pediatrics, Obstetrics and Gynecology, Medicine. Seattle. (Sponsored by Arnold L. Smith)

Sexual activity of adolescent females increased greatly from 1971 through 1979, and reported gonorrhoea rates rose more in 15-19 yr. old females than in any other age-sex group. Using data on reported incidence of syphilis, estimated incidence of hospitalized pelvic inflammatory disease (PID) in 1976 (National Hospital Discharge Survey), age and sex composition of the U.S. population and the estimated proportion of U.S. adolescent females sexually experienced (SE) (Zelnick et al), we estimated the annual incidence of syphilis and PID per 100,000 among all and among sexually experienced females:

AGE	SYPHILIS		HOSPITALIZED PID	
	All	SE	All	SE
12-15	6	94	92	1469
16-19	35	69	338	697

For SE females in 1976, the risk of hospitalized PID decreased by 22% per year between ages 15 and 19 yr. ( $r = .80$ ).

In King County, WA, 40% of 455 reported cases of gonococcal PID in 1979-80 were in adolescents.

In pregnant women in Seattle, *Chlamydia trachomatis* infection was found in 14% of 182  $\leq 19$  yr. old and 4% of 697  $\geq 20$  yr. old.

Thus, adolescents seem to be at much greater risk of certain sexually transmitted diseases than are older women.

## 4 RUBELLA SUSCEPTIBILITY IN AN ADOLESCENT POPULATION: HOW REAL IS THE RISK? Adrienne B. Butler, Robert McN. Scott, Manuel Schydlower, Richard M. Lampe, James A. Schwab, Andre A. Muelenaer, Ronald Fearnow. (Spon. by Carol J. Baker). William Beaumont Army Medical Center, Department of Pediatrics, El Paso, Texas, and Walter Reed Army Institute of Research, Department of Virus Diseases, Washington, D. C.

Rubella serology (R-HAI) on 129 adolescents was performed and the response to revaccination of seronegative (<1:8) and low titer (1:8-1:32) subjects was determined (R-IgM, R-IgG). Seventeen percent (18/108) of adolescents with documented rubella vaccination (a mean of 8.3 years before) had no detectable (R-HAI) rubella antibody.

Each of 9 previously immunized but seronegative patients developed a R-IgG response following rubella revaccination and no R-IgM response was detected. Each of 12 previously immunized but low titer (1:8-1:32) patients developed a R-IgG response following rubella vaccination and no R-IgM was detected. In contrast, two seronegative subjects who had never previously received vaccine developed R-IgM in their sera two weeks following immunization.

The presence of a secondary immune response (R-IgG) despite absence of antibody detectable by R-HAI in previously immunized patients suggests that the R-HAI is an inadequate screening tool. Reimmunization with RA27/3 of 10-11 year old females is recommended until a more satisfactory serologic test is available.

## 5 SCREENING FOR PHARYNGEAL GONORRHEA IN URBAN TEENAGERS Marian P. Chacko, Marc S. Jacobson, Spon. by Felix D. Reid, Univ. Md. Sch. Med., Dept of Ped., Baltimore

Studies of adult VD clinics, world-wide, report that the prevalence of pharyngeal gonorrhoea (GC) varies from 1.3% to 5.7%, but the incidence among adolescents has not been delineated. A retrospective chart review was conducted to assess the usefulness of pharyngeal cultures in GC screening with urban adolescents. The study population was teenagers who visited the Adolescent Clinic and were cultured for GC; they were routinely cultured at all 3 sites (cervix or urethra, rectum and pharynx) regardless of their history of sexual practice. From Dec. 1977 to Oct. 1980, documented cultures at 3 sites were recorded for 546 patients (no record of sexual practice was available). This population was predominantly urban, black (95%) and female (90%); the age range was 11 to 22 years. Positive cultures were confirmed by fluorescent antibody reaction followed by sugar fermentation (for doubtful reactions).

The overall occurrence of GC was 14.7%. Pharyngeal GC was detected in 27.5 of the study population, representing 12 females and 3 males (mean age 15.1, range 12-19). Of the 80/546 patients with GC, 15% had only pharyngeal GC. History was available for 11 of these 12 patients: none had pharyngeal symptoms. Five were detected at a routine family-planning visit and six had genital-tract symptoms. Particularly in the context of routine screening in a general adolescent clinic, the occurrence of pharyngeal GC is sufficiently high to merit study of indications for pharyngeal culture of teenage patients. A positive history of fellatio/cunnilingus may be an adequate indicator, as reported for adults. Alternatively, it may prove appropriate to culture adolescents routinely for pharyngeal GC, regardless of stated sexual practice.

## 6 FACTORS DETERMINING SEVERITY IN THE TOXIC-SHOCK SYNDROME (TSS). P. Joan Chesney, Jeffrey P. Davis, Russell W. Chesney. University of Wisconsin, Department of Pediatrics and Wisconsin Division of Health, Madison, WI.

22 women fulfilling the criteria for the case definition of TSS were evaluated for factors related to disease severity. The 7 patients who required dopamine (DOP) had a significantly longer duration of hospitalization (DOH) (Table). There were no statistically significant differences or unusual trends between the DOP and non-DOP requiring groups for cardiac or pulmonary involvement, or in duration of illness prior to hospitalization or when values for serum SGOT, total protein, albumin or calcium were examined. No correlation could be made between the two groups with respect to type or duration of steroid or antimicrobial therapy.

Renal function as measured by peak serum BUN, and creatinine (Cr) levels within the first 2 days of hospitalization was significantly different between the two groups (Table). Although not statistically significant, the DOP recipients tended to have TSS onset earlier in menses ( $P = .072$ ) and higher total serum bilirubin values ( $P = .063$ ). In summary, severity of TSS as measured by DOP requirement and a prolonged DOH was significantly correlated only with the degree of renal involvement. Increased absorption or recirculation of the postulated

	No. of Pts.		P	
	DOP	No DOP		
Cr $\geq 3$ mg/dl	7	0	.000009	significantly correlated only with the degree of renal involvement. Increased absorption or recirculation of the postulated toxin(s) may account for these findings.
<3 mg/dl	0	15		
DOP $\geq 9$ days	6	2	.0023	
<9 days	1	13		