EVALUATION OF KIDNEY DIMENSIONS IN PRETERM INFANTS AT VARIOUS GESTATIONAL AGES

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ABSTRACT

Anthropometrica! characteristics are indicators of growth, development and health situation.The aim of the research was defining the kidney dimensions in preterm infants at variosus gestational ages.Knowledge of these measurements may earlier diagnosis of a variety of abnormalities.Kidney dimensions (maximum longitudinal length, width, and anteroposterior diameter) in relation to gestational age, were determined in 120 preterm infants (48 females and 72 males), with gestational ages from 15 to 25 weeks.A highly significan correlation was found between renal dimensions and gestational age

Key words: premature, infants, kidney, anatomy

INTRODUCTION

Antropometrical characteristics are indicators of growth, development and health situation. The aim of the research was defining the kidney dimensions in preterm infants at variosus gestational ages. Knowledge of these measurements may earlier diagnosis of a variety of abnormalities.Kidney dimensions (maximum longitudinal length, width, and anteroposterior diameter) in relation to gestational age, were determined in 120 preterm infants (48 females and 72 males), with gestational ages from 15 to 25 weeks.A highly significant correlacion was found between renal dimensions and gestational age.

MATERIAL AND METHODS

The material for this investigation was taken from GAK, Clinical center, Skopje and contained 120 preterm infants of both sexes (48 females and 72 males) with gestational ages from 15 to 25 weeks. We measured their 240 kidneys with standard antropometrical procedures. Kidney dimensions (length, width and anteroposterior diameter were compared with gestational age. We applied the inspection / dissection method, as the best procedure in the research of the autopsy material. Statistical analysis was done by using standard statistical methods with a commercial o computer program statistica -stat-sofit. Values p< 0.05 were considered significant (s), p<0,001 very significant (vs), and p>0,05 insignificant.
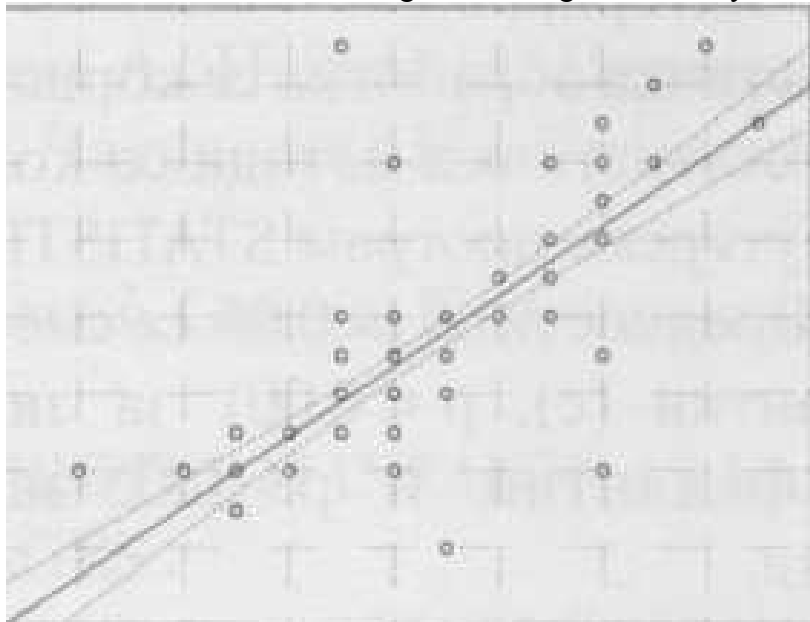
RESULTS

Kidney dimensions (length, width and anteroposterior diameter) in relation to gestational age were determined with Pearson- coefficient of corelation.

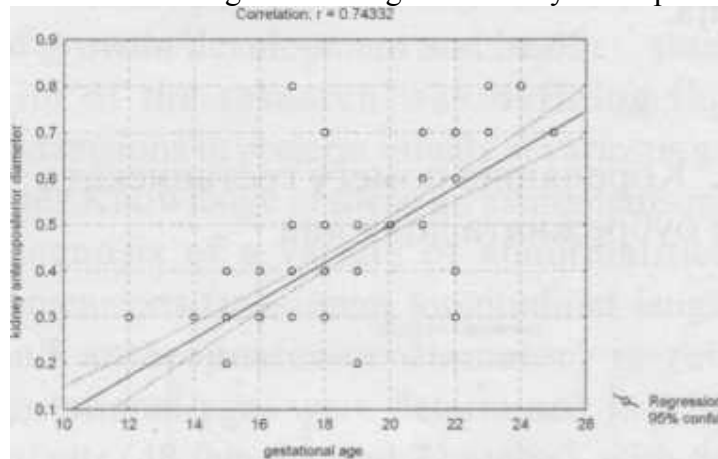**Table 1.** Corelation between gestational age and kidney length
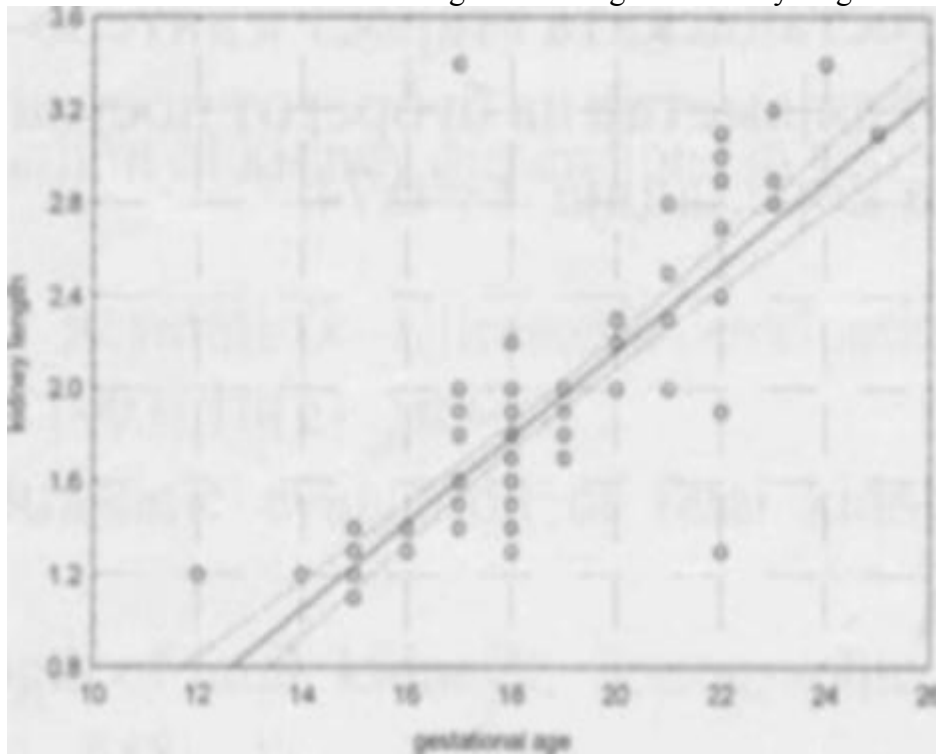
Analisis with Pearson- coefficient of correlation shows highly significant correlation between gestational age and kidney length r = 0,82.

Table 2. Correlation between gestational age **and** kidney width

A highly significant correlation between gestational age and kidney width r=0,78

Table 3. Correlation between gestational age and kidney anteroposterior diameter

A highly significant correlation between gestational age and kidney anteroposterior diameter r = 0.74

Discussion

Kidney dimensions in relation to gestational age, were studied by many authors. So Gupta AK, Anand NK, Lamba IM (1), (length, width and anteroposterior diameter) were measured within 48 after birth in 100 healthy neonates within gestational ages from 26.14 to 41.28 weeks and birth wights from 540 to 3250g. On linear regression analysis, a highly significant correlation was found between renal dimensions and gestational age. ChiaraA, Chirico G, Barbarini M et al (2), kidney volume in relation to gestational age, birthweight, and height were determined ini21 infants, 58 females and 63 males, with gestational ages from 23 to 43 weeks (mean 33.3) and birthweight from 430 to 4600 gr (mean 1982 gr). In the infants studies mean volumeof the right kidney was 6.6 ml (range 1.5 to 15.6 ml) with no significant difference. A highly significantcorrelation was found between the volume of the both kidneys and gestational age. And many otherauthors were working to this problem.

CONCLUSION

In the analyzed serie of 120 preterm infants, a highly significant correlation was found between : gestational age and kidney length, gestational age and kidney width and gestational age and kidney anteroposterior diameter.Knowledge of these measurements may earlier diagnosis of a variety of abnormalites.

REFERENCES
1. Gupta AK, Anand NK, Lamba IM. Ultrasound evaluation of kidney dimensions in neo - nates. Indian Pediatr 1993; 309 (3): 319-24.
2. Chiara A, Chirico G, Barbarini M, De Vecchi E, Rondini G. Ultrasonic evaluation of Kidney volume in term and preterm infants. Am J Perinatal. 1993; 10(2): 109-11.
3. Lawson TL, Foley WD, Berland LL, Clark KE. Ultrasonic evaluation of fetal kidneys. Radiology 1981; 138: 153 -6.
4. Cohen HL, Cooper J, Eisenberg P, et al. Normal length of fetal kidneys: Sonographic study in 397 obstetric patients. AJR-1991; 157: 545 - 548.
5. Bertagnoli L, Lai lata F, Gallicchio R, et al. Quantitative characterization of the growth of the fetal kidney. J Clin Ultrasound 1983; 11: 349 - 356.
6. DeVeriesL, Levine ML Measurement of renal size in preterm and term infants by real ime ultrasound. Arch Dis Child 1983; 58: 145 - 147.