Nipple Diameter in Eastern Turkish Pubertal Boys

To our knowledge, only one report describing nipple diameters in pubertal boys has been published. We studied 462 boys, aged 8–17 years, to determine if nipple diameter might provide measurable criteria for assessing sexual maturation during male puberty. In addition, assessing whether nipple diameter differed in the presence or absence of gynecomastia. Genital (G) and pubic hair (PH) maturation were staged by Tanner’s criteria. Gynecomastia, when present, was measured in one plane by palpating the glandular tissue and measuring the longest and shortest axes. After palpation, the greatest diameter of the erect nipple plateau was measured using a plastic template circular cutouts gruated in mm. All measurements were made on both sides by the same observer (H.Y.). The smaller of the two measurements was used in the analysis. The data were analysed using multiple regression analysis. One-way analysis of variance with post hoc t-tests by Scheffe’s procedure was used to assess for significant differences between pubertal stages of pubertal boys with and without gynecomastia using the Mann–Whitney U-test.

Multiple regression analysis demonstrated that nipple diameter was strongly correlated with the boys’ G and PH stages (r = 0.94 for each). Significant correlation was also noted for testicular volume (r = 0.62). The results of the analysis of variance were significantly different for G and PH stages (F = 48.3 and F = 39.6, respectively; p < 0.001 for each). The average nipple diameter was also significantly larger in G2 (2.68 mm) and PH2 (2.76 mm) than in G1 (2.28 mm) and PH1 (2.31 mm); and in G4 (3.65 mm) and PH4 (3.45 mm) than in G3 (2.99 mm) and PH3 (2.45 mm). Nipple diameter was 3.65 mm for G5 and 3.69 mm for PH5. Boys with pubertal gynecomastia had similar nipple diameters that did not differ significantly (p > 0.05) from those of boys without gynecomastia.

Our data and Rohn’s data suggest that sexual development staging by nipple size does not appear to be feasible in pubertal boys, despite the statistical significance in several G and PH stages, because the incremental changes in size are small. In our study, nipple diameters of boys with and without gynecomastia were similar. In a cross-sectional study Rhon found that boys with gynecomastia had significantly larger nipples. It is reported that boys with gynecomastia had an abnormal androgen–estrogen ratio and lower serum free testosterone levels. These data may indicate the effect of increasing estrogen in larger nipple diameters. In contrast to Rohn’s results, in this study, the finding that boys without gynecomastia at stages G5 and PH5 had the largest nipple size of any other male group is of further interest, as gynecomastia usually resolves by late puberty. Thus, this difference in nipple size may be clinically useful if it proves possible, in a longitudinal study, to distinguish between those boys whose gynecomastia will resolve and those whose gynecomastia will persist and possibly require surgery for resolution. Further studies are needed to establish the relationship among nipple diameter, pubertal stages, and estrogen and/or progesterone levels or secretory patterns.

HUSEYIN GUVEC, A. DENIZMEN AYGUN, HIKMET YENIOLU, AND SAADET AKARSU

Department of Pediatrics, Medical Faculty of Firat University, Elazığ, Türkiye

References


Correspondence: A. D. Aygun, Firat Üniversitesi Firat Tip Merkezi, 23119 Elazığ, Turkey.
E-mail <adaygun@firat.edu.tr>.

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