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71821 - Comparisons of serum and urine concentrations of leucine-rich alpha-2 glycoprotein 1 (LRG1) in children with and without appendicitis

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Introduction: Leucine rich alpha-2 glycoprotein 1 (LRG1) has emerged as a promising biomarker for appendicitis, especially in pediatric patients. However, the currently available data are sparse. We aimed to compare serum and urine leucine rich alpha-2 glycoprotein 1 (LRG1) concentrations in children with no appendicitis (NA), uncomplicated appendicitis (UA) and complicated appendicitis (CA).

Method: A prospective study including children <15 years with suspected appendicitis (pain in the right lower quadrant). Blood and urine samples were collected during clinical evaluation at the Pediatric ED and analyzed for LRG1 concentrations. Group comparisons were made using Kruskal-Wallis test with post hoc Dunn-Bonferroni tests for pairwise comparisons. Appendicitis diagnosis and severity were determined through histopathological examination. The study was approved by the regional ethics committee (Regionala Etikprövningsmyndigheten, Lund, Sweden, DNR 2013/614).

Result: 173 children were included. 133 (77%) had appendicitis and 57 (43%) of these had complicated appendicitis. The median age was 10 (IQR 8-12) years and 99 (57%) were boys. The groups differed in distribution of sex, age and symptom duration. Median serum LRG1 for patients with NA, UA, and CA were 27.6 (19.7-36.6) μg/mL, 24.8 (18.7-30.1) μg/mL, and 23.5 (18.9-31.5) μg/mL, respectively (p=0.16). Median urine LRG1 were 0.33 (0.10-0.72) μg/mL, 0.1 (0.02-0.29) μg/mL, and 0.3 (0.12-1.07) μg/mL, respectively (p<0.001, significant when comparing NA with UA, and UA with CA).
Discussion: There were no differences in serum LRG1 in our groups. Children with UA had lower urine LRG1 compared to children with NA and CA. These analyses, however, do not take into consideration potential confounding.