46 Are children with birth defects an economic black hole when it comes to treating vesicoureteral reflux?

European Urology Supplements 2019;18(2):e2354

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Introduction & Objectives: The management of children possessing birth defects is oftentimes a strenuous task for every hospital, due to the severity of the associated diseases, but also due to the heterogeneity of potential complications. Thus, they are generally referred to hospitals with great experience in this field.
The aim of this study is to verify whether, in the "Grigore Alexandrescu" Clinical Emergency Hospital for Children (CEHC), the costs regarding the treatment of vesicoureteral reflux (VUR) are greater for children with birth defects, than in the case of children born without defects of any kind.

Materials & Methods: The study includes 346 patients treated in the Pediatric Surgery ward of the CEHC. The patients were divided into two groups regarding the main decision criterion - the presence of birth defects, the groups consisting of: 146 children with birth defects, and 197 children without. MedCalc 14.1 was used for the statistical analysis.

Results: The group of children without birth defects contains more females than males (n=139 vs n=58), the females diagnosed with VUR an average of 9 months earlier (p=0.0945). In the group of children born with defects the sex ratio is reversed, with males diagnosed approximately 12 months earlier (n=86 vs 62; p=0.0765). In total, children with birth defects are diagnosed with VUR at a younger age (36.37 months, n=148 vs 44.24 months, n=195; p=0.062). On average, both groups are hospitalized for 6 days (6.2 vs 6.9; p=0.27), but the cost of hospitalization is significantly higher in children with birth defects (1440 EUR vs 1320 EUR; p=0.04). It is worth mentioning that the standard deviation is greater in children with birth defects (656 EUR vs 320 EUR). The rate of postoperative complications has been greater in children with birth defects (28.75% vs 17.1%). Using the Chi-Square test, we also see a statistically significant difference in the frequency of distribution (p=0.0438), with an RR=1.727 (95%CI=1.01-2.97), underlining the presence of birth defects as a risk factor for postoperative complications. However, upon conducting a ROC analysis on the patients not presenting complications, using the cost of hospitalization as a variable and the presence of malformations as the classification criterion, a cut-off point of 1560 EUR is revealed (AUC=0.51, sensitivity=43.7%, specificity=67.3%; p=0.6). Thus, in order to obtain a favorable result in 67% of cases, at least 1560 EUR have been spent.

Conclusions: In conclusion, in spite of the small financial difference between the two groups, a physician admitting a child with both birth defects and VUR should not start off by thinking more money will have to be spent, but rather take into account the higher rate of postoperative complications, which can amount to a true economic black hole, this fact being supported both by the greater standard deviation, as well as the ROC analysis.