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Comparison of two algorithms in the prediction of the accessory pathway localization in children with Wolff-Parkinson-White.

Dewals W., Moran D., Coutino H., de Asmundi C., Benatar A.
Universitair Ziekenhuis Brussel
Belgium

INTRODUCTION
Several algorithms have been developed to predict the localization of the accessory pathways (AP) in patients with Wolff-Parkinson-White (WPW).
Boersma et al. developed an algorithm specifically designed for the pediatric population.

AIM
We aim to compare the accuracy of predicting the localization of the AP using the adult algorithm according to d'Avila et al. and the pediatric algorithm by Boersma. Both algorithms are based on QRS polarity.

METHOD
We present our single center experience of children with WPW. The data were collected retrospectively in a database from April 2007 to November 2015. Patients aged ≤18 years with documentation of pre-excitation on a 12 lead resting ECG and with eminent prove of an accessory pathway on electrophysiological study (EPS) were included. Patients with concealed pathway were excluded. The ECG was analyzed blinded from EPS results. The primary outcome concerns an exact match between the predicted localization and site of ablation, but because both algorithms describe different categorization for AP localization, an agreement was made on which localizations could be accepted as a match in a secondary analysis. Since Boersma's algorithm points out multiple possible localizations, a match was accepted if any one of these sites corresponded with localization on EPS.

RESULTS
Inclusion criteria were met for 36 patients. Sixty-nine percent of the patients were boys. Median age was 13 years (4-18 years). The algorithm by Boersma provided an exact match in 29 patients (80%) while the one by d'Avila only provided an exact match in 24 patients (66%). If we expand our match as previously described, the accuracy of the algorithm by d'Avila augments up to 75%.

CONCLUSION
The algorithm by Boersma provided a more correct, though less detailed localization of the AP in 80% of our patients. Using the more detailed adult algorithm by d'Avila this result was almost equaled on condition that we accepted some previously agreed sites as a match.