Improvements in post-operative arrhythmia identification using Atriamp signals after cardiac surgery

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BACKGROUND

- Greater than 20,000 pediatric patients with congenital heart defects undergo surgery each year
- Prevalence of atrial arrhythmias is as high as 60% and can lead to significant increase in the patient’s length of hospital stay, morbidity, and mortality
- The American Heart Association recommends atrial electrogram be obtained to help interpret and diagnose atrial arrhythmias

CONCLUSIONS

- 29 of 40 providers (72%) completed the survey
- With the Atriamp, there was a statistically significant increase in provider confidence in diagnosis
- Overall, there was an increase in accuracy with the Atriamp, but it was not statistically significant
- However, there was a statistically significant increase in the ability to accurately diagnose the following rhythms
  - Junctional Ectopic Tachycardia
  - Atrial Ectopic Tachycardia
  - Ventricular Tachycardia

METHODS

Study Aims:
- Pilot study to assess provider confidence in diagnosis using the Atriamp

Methods:
- Ongoing prospective observational study of children admitted to the PICU with atrial epicardial wires following congenital heart surgery
- Nine different types of arrhythmias collected were collected over the course of the first five months of the study
- A 20-question online survey created and given to critical care and cardiology providers (MD/NP/PA). Questions 1-10 were only with surface ECG. Questions 11-20 contained the surface ECG with Atriamp signal.
- Two electrophysiologists evaluated all ECGs and awarded points as follows:
  - Correct answer – 2 pts
  - Possible answer – 1 pt
  - Incorrect answer – 0 pt
- The survey was then evaluated for confidence and accuracy
- A one-sample t-test with cluster effect was used to calculate the sample size

RESULTS

- 29 of 40 providers (72%) completed the survey
- With the Atriamp, there was a statistically significant increase in provider confidence in diagnosis
- Overall, there was an increase in accuracy with the Atriamp, but it was not statistically significant
- However, there was a statistically significant increase in the ability to accurately diagnose the following rhythms

ADDITIONAL KEY INFORMATION

- References:

Limitations:
- Lack of clarity without clinical vignettes
- Smaller sample size

Conclusion:
- The Atriamp increased provider confidence in their diagnosis
- The Atriamp increased provider ability to accurately diagnose JET, AET, VT

Next Steps:
- Revise survey to include vignette
- Multicenter survey
- Evaluation of clinical effectiveness

Dr. Nick VonBergen is the inventor of the Atriamp.