DIAGNOSIS OF PEDIATRIC ARRHYTHMIAS IN THE EMERGENCY DEPARTMENT: AN ACADEMIC CHALLENGE

Aida-Luz Giraldo[1,6], GE Rueda-Merchán[2,3,5], PJ Baquero- Marín[2, 3,5,7], DM Bados-Enríquez[4,5,8].

To the editor:

Over the last decades the reported incidence of arrhythmogenic events in the pediatric population has varied, with a 5% incidence being the current estimate for children aged up to 7 [1]. Taking into account that this condition constitutes a complex and uncommon group, healthcare professionals in general have been concerned with improving our knowledge of this clinical entity, which has contributed to an enhanced capability for recognizing congenital clinical conditions that are associated with heart-related sudden infant death syndrome [2, 3].

In pediatric patients the prevalence of these kinds of anomalies is lower than in the adult population. Supraventricular tachycardia is the most common form of arrhythmia in children, and it constitutes the main cause of cardiovascular emergencies, accounting for 90% of cases [1]. Using diagnostic tools such as 12– lead ECG it is possible to assess cases of arrhythmia in emergency departments, which has lowered the number of deaths caused by cardiovascular events in the pediatric population; however, resorting to these diagnostic aids is of no use without a sufficient amount of expertise in interpreting the observed findings, specialized equipment, and the ability to deliver a suitable treatment [4]. As a result, emergency departments can provide only limited assistance, and cases of arrhythmia must be managed by medical staff other than pediatric cardiology specialists [2, 5].

Detecting heart rhythm abnormalities in the pediatric population has become a challenge for the 21st century practitioner. Special circumstances (such as the age of the patients and heart physiology phenomena) that are brought about by the growth of this population difficulties in interpreting patient data [6]. A study carried out in 12 countries evaluated 900 physicians from different departments (including specialists in different branches of internal medicine and general practitioners) found that less than 50% of participants could fully determine whether heart rhythm was altered using 12-lead ECG [2].

Over the last fifteen years, the use of ECG as a tool for diagnosing arrhythmia in emergency departments has led to ECG being valued for its useful applications on special groups of patients, and to the acknowledgement of its advantages, such as its ability to recognize conditions like long QT syndrome, which could be helpful in preventing the development of lethal arrhythmia in pediatric patients, and in the detection of asymptomatic heart conditions that lead to sudden infant death [5, 6].

We consider that it is essential that current medical training further provide general practitioners with tools that are sufficient to detect and treat arrhythmia in pediatric patients in full. In addition, it is necessary to obtain more evidence in order to establish whether it is justified to employ ECG scanning on patients whose personal and familial clinical history indicates that there is risk of sudden infant death syndrome, taking into account that in our country the evidence supporting the use of these imaging procedures as a prevention measure is scarce.

References

1 Departamento de Pediatría, Fundación Universitaria Autónoma de las Americas. Pereira. Colombia.
Email de contacto: hada.giraldo@gmail.com
2 Facultad de Medicina. Fundación Universitaria Autónoma de las Américas. Pereira. Colombia.
3 Semillero de Investigación en Pediatría y Puericultura (SIPEP). Fundación Universitaria Autónoma de las Américas. Pereira. Colombia.
4 Facultad de Ciencias de la Salud. Universidad del Tolima. Ibagué. Colombia.
5 Asociacion de Sociedades Científicas de Estudiantes de Medicina de Colombia (ASCEMCOL).
6 Contact email: hada.giraldo@gmail.com
7 Contact email: pedrobaquerom@gmail.com
8 Contact email: diegoconques@gmail.com

1.   David, L.B.M. and S.C.B. Esthela, *Evaluación electrocardiográfica en pacientes pediátricos con arritmia cardiaca.* Revista Médica de la Universidad Veracruzana, 2008. **8**(2): p. 14-19.
2.   Viskin, S., et al., *Inaccurate electrocardiographic interpretation of long QT: the majority of physicians cannot recognize a long QT when they see one.* Heart Rhythm, 2005. **2**(6): p. 569-574.
3.   Sanches, M., et al., *Electrocardiograma en edad pediátrica.* SEMERGEN-Medicina de Familia, 2014. **40**(6): p. 334-340.
4.   Saul, J.P., et al., *Rationale and objectives for ECG screening in infancy.* Heart Rhythm, 2014. **11**(12): p. 2316-2321.
5.   Rodday, A.M., et al., *Electrocardiogram screening for disorders that cause sudden cardiac death in asymptomatic children: a meta-analysis.* Pediatrics, 2012: p. peds. 2011-0643.
6.   Brockmeier, K., R. Nazal, and N. Sreeram, *The electrocardiogram of the neonate and infant.* Journal of Electrocardiology, 2016. 49(6): p. 814-816.