Etiology of pediatric Out of Hospital Cardiac Arrest, a three-year Danish regional analysis.

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BACKGROUND:

OHCA is a rare condition for children and young adults. Overall incidence rates are reported as 3.3-5.97 per 100.000 inhabitants (1, 2). Previous studies have identified a diverse and slightly incompatible etiologies (2, 3). The purpose of this study was to analyze presumed etiologies of pediatric OHCA and report incident and survival rates.

METHODS:

Data was collected from the verified 2016-2018 Danish OHCA register and EMS reports from the Capital region of Denmark. Inclusion criteria were OHCA victims aged ≤ 16 years. The Capital region of Denmark has a population of 1.8 million and approximately 20% are ≤ 16 years old. All included EMS reports were analyzed and the presumed etiology was assigned to each case. Incidence rates per 100.000 citizens, survival hospital.

Cause
Hypoxia (51%, n=28)
Trauma/hypovolemia (16%, n=9)
Toxic & Hypothermia (4%, n=2)
Unknown (22%, n=22)
Hereditary disease (7%, n=4)

RESULTS:

A total of 55 verified cases of children with OHCA were reported. Incident rates were 0.83-1.34 per 100.000 inhabitants per year. Preliminary data show survival to hospital was 46% which was markedly higher than the adult population (28%, $p = 0.002$). The most common cause of OHCA was hypoxia (51%) followed by trauma/hypovolemia (16%) and others (4%). Approximately 22% did not present with a known etiology. Hereditary disorders as the primary cause was noted in 7% of the cases.

CONCLUSION:

Pediatric OHCA from 2016-2018 had incident rates from 0.83 to 1.34 per 100.000 inhabitants per year, rates of survival to hospital of 46% and the most common cause noted was hypoxia.

1. Rajan S. et al. Out-of-hospital cardiac arrests in children and adolescents: incidences, outcomes, and household socioeconomic status. Resuscitation. 2015.

2. Ong ME. et al. Etiology of pediatric out-of-hospital cardiac arrest by coroner's diagnosis. Resuscitation. 2006

3. Richman PB, Nashed AH. The etiology of cardiac arrest in children and young adults: special considerations for ED management. The American journal of emergency medicine. 1999.

Incidence rate
per 100.000 inhabitants
0.83-1.34

Survival to hospital rate
46%