

Mortality in Spanish pediatric emergency departments: a 5 years multicenter survey

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Background

Critically ill or injured patient are very uncommon in industrialized countries. Nevertheless, to analyze the causes of death of children in the Pediatric Emergency Departments (PED) seems to be mandatory in order to design strategies to reduce this mortality. It may help us to understand the causes of mortality in these patients and therefore act and develop management and prevention strategies, with the aim of reduce the mortality of these patients and improve their quality of care in PED and pre-hospital settings. However, no study has been carried out previously in our environment.

Objective

To know the causes of death in Spanish pediatric emergency departments and to analyze the management of these children in the pre-hospital and hospital settings

Methods

This was a retrospective descriptive multicenter survey including all patients whose dead was certified in 18 Spanish PEDs between 2008 and 2013. Data were introduced by the centers themselves through an electronic form (Google Drive).

Results

During the study period 3,542,426 episodes were registered in the 18 PEDs. Of these, 54 patients died in the PED (mortality rate: 1.5 died patients/100.000 visits). Data of 53 are analyzed.

Thirty-six were male (67%) and 31 younger than 2 years old (58,4%; 23 younger than 1 year old; 43,4%). Twenty-three were non-previously healthy children (43,3%, mainly because of neuromuscular and congenital heart diseases). The main causes of death were the followings: event related to their previous illness 14 (26,5%), Sudden Infant Death Syndrome (SIDS) 14 (26,5%), traumatism 10 (18,8%, 8 politraumatism, 1 intracranial hemorrhage and 1 head injury), drowning 1 (1,8%), and asphyxia 1 (1,8%). In only one patient an infectious agent was detected as responsible of the death (meningococcal sepsis). The rest of the causes of death were unknown (24,5%)

Pre-hospital CPR was performed in 31 patients: exclusively by medical staff in 19 (the others by family members, teachers, police or acquaintances). In 35 cases the parents are present in the moment of the alarm and 7 of them began CPR (20%).

Thirty children were transferred to the PED by medical ambulance (56,6%) receiving all of them pre-hospital CPR (vs 1 patient in the group of patients arriving in a non-medical transportation, 7.7%).

When arriving in the PED all showed unstable Pediatric Assessment Triangle (37 cardio-respiratory failure, 69.8%). In 37 children CPR was performed in PED (69.8%), previously initiated in 22.

Overall, when done, CPR was performed during 26.6 minutes (10-120 minutes and in 6 cases more than one hour).

CPR was not performed in 7 patients at anytime.

Significant interregional differences were found related with mortality rate and duration of CPR maneuvers.

Conclusions

Certification of death in Spanish PEDs is very uncommon. Main causes of death are related to previous illnesses, SIDS and non intentional lesions. Several improvement actions have to be considered in the management of these children.