Retrieval of inhaled foreign bodies – a public health success story?

T. Hampton, R Clarke

Background Foreign body (FB) aspiration is one of the leading causes of death in young children, responsible for more than 300 deaths per year in the USA (Black, 1994). It most commonly occurs in the 1-3 year-old age group, tending to occur in boys more than girls. Most deaths occur at the time of aspiration due to complete upper airway obstruction.

Of those children who reach hospital, the mortality is low; even in 1917, Chevalier Jackson's case series found a mortality of 1.5 % but in many large case series in the 1990s, the in-hospital mortality has been reported as zero (Farrell, 2004).

Despite this, significant peri-operative morbidity, mortality and health expenditure can still occur and can potentially be reduced, prevented or anticipated with appropriate management and precautions.

Between 1986 to 1996 toy choking represented 7% of UK cases. As a result the department for trade and industry establish legislation about minimum toy sizes (see below)

This level of public health intervention is not worldwide but are FB trends noticeable different?

During 2009, 300 hospital admissions in England were due to FB inhalation in children. What's the latest?

The authors heard anecdotal reports of changing trends in foreign body inhalation.

During Global ENT visits, overseas partners told a different story. We looked at UK public health legislation and compared the latest HES data with a previously unpublished audit of ENT activity in Sierra Leone and contrast with a selection of similar international audits

HES data from 2017 all OPD, admissions and ED attendances
15,000 complaints of foreign body (FB)

This includes nose, ear, upper respiratory tract, lungs or oesophagus.
(For all other figures we will only refer to paediatric patients (0-16yrs))

The most common Paediatric presentation was **2,606 Ear FB**, of which 15 to 16 year olds accounted for 99%.

Nasal FB occurred in 1,671 but for this orifice, Under 5's accounted for 82%.

There were 919 Oesophageal FBs and **986** Upper respiratory tract FBs and over half of both are found in under 5 year olds.

UK law/ EU law

China

340 FB procedures in 3 years
population 14 million
Huang, 2013

Japan

24 FB operations in 10 years
population 252,000
Endoh et al 2016

How do we compare?

Malawi

population 9 million
only 3% (11 cases) of procedures were for inhaled FB in 12 months
Kendig 2012

Sierra Leone

24 paed FB

1 million pop.

7 months

South Africa

105 patients in 2 years
population 4.5 million
Majola et al 2018

Discussion This review demonstrates that although a number of countries are collecting prevalence data, corroborating senior clinician's impressions about falling numbers of inhaled foreign bodies is difficult. Each centre serves varied and disparate populations and patients attending LMIC centres face additional barriers to seeking care which may skew data. Public health legislation means that toys below a certain size now come with choking warnings but it is not clear from existing studies whether this is responsible for any statistically significant changes in FB inhalation rates and morbidity.

Alder Hey Children's Hospital
Department of Otolaryngology
Eaton Road, Liverpool, L12 2AP
United Kingdom

For References or correspondence
Email: Thomas.hampton@nhs.net
Web: www.alderhey.nhs.uk