Fatal anaphylaxis is decreasing in France: analysis of national data, 1979-2011

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Aims: Incidence of anaphylaxis is increasing. Data regarding anaphylaxis mortality are limited, but conflicting. Our objective was to document anaphylaxis mortality rate (deaths per million population), time trends and specificities according to triggers (iatrogenic, venom, food, unknown), age groups, sex and geographical regions (North and South) in France, between 1979 and 2011.

Methods: Data were obtained 1) from database of the National Mortality Center (CEPIDC) to collect cases in which anaphylaxis was included as a cause of death, sex, age, and geographic region of death, 2) from the database of the National Institute for Economical and Statistical studies (INSEE) to define the referent populations. We used a multivariable log-linear Poisson regression model to assess the impact of time period, age, sex and geographic region on anaphylaxis deaths.

Results: During the period study, 1603 deaths were collected: 1564 in adults and 39 in children (age<18y). The overall prevalence of anaphylaxis fatalities was 0.84 per million population (95%CI: 0.80-0.88), ranging from 0.08 per million (95%CI: 0.05-0.10) in pediatric population to 1.12 per million (95%CI: 1.06 to 1.17) in adult population. Annual percentage change for case fatality rate was -2.0% (95%CI: -2.5 to -1.5; p<10^-4) indicating a decrease in case fatality rate during the study period. Anaphylaxis fatality rate was higher in men (1.08 per million [95%CI: 1.00 1.16] than women (0.86 per million [95%CI: 0.80-0.92]) (p<10^-4). Triggers of anaphylaxis fatalities were iatrogenic (63%), mostly drugs, venom (14%) and food (6%). Unspecified anaphylaxis was frequent (23%). The highest rate was in persons aged > 70 years (3.50 per million population per year [95% IC: 3.25-3.76]) and the lowest in the pediatric population (p<10^-4). Only venom-induced mortality rate was higher in South of France (0.16 per million [95%IC: 0.13-0.19]) compared with the North (0.11 per million [95%IC: 0.09-0.13]) (p=0.004). Only 8 food-induced fatalities were recorded (age <35 years in 7 cases).

Conclusion: Overall anaphylaxis mortality rate is decreasing over the three last decades in France. We confirm that iatrogenic causes are the most frequent causes. Older age and male sex are risk factors of fatal anaphylaxis of any cause except for food-induced anaphylaxis.