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Abstract (oral session)

Mumps enhanced surveillance: pitfalls in laboratory diagnosis

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Objectives: In 2006, the implementation of molecular diagnostic technique for mumps virus in saliva, Catalonia launched a mumps control programme. Nevertheless circulation of indigenous virus has not been interrupted. The objective of this study was to analyze characteristics of mumps diagnosis and clinical characterization of cases in Catalonia from the end of 2006 up to 2011. Methods: Suspected cases reported to the Department of Health, Generalitat of Catalonia, from October 2006 to October 2011 were studied. Laboratory confirmation was attained by determination of positive mumps virus (MV) genome detection in saliva with real time polymerase chain reaction (PCR-RT) and/or specific IgG and IgM antibodies by enzyme immunoassay. Specimens were submitted during first 1-3 days of symptoms for maximal viral shedding. If PCR was negative for MV, confirmation of the case was assessed for clinical case definition compliance and/or epidemiological link to a confirmed mumps case. Vaccination status and type of vaccine received was obtained from epidemiological case investigation records. Positive PCR samples were then genotyped. Results: Of 1294 samples with full clinical history information, 658/1294 (50.8%) were considered as cases [253 (19.6%) were laboratory confirmed; 38 (3%) by epidemiological link to confirmed case and 367(55.7%) were classified as clinically compatible cases despite negative PCR and/or IgM]. PCR positivity rate was 17.8% (181/1018). Rate of vaccinated confirmed cases (at least one dose Mumps containing vaccine) was 69.3%. Stratifying year of birth to assess whether Urabe(U), Rubini (R) or Jeryl Lynn (JL) strain containing vaccine was administered to cases, the result was 7.3%, 22% and 56.7% respectively. Genotype was obtained from 95/165 samples with registered vaccine history, distribution according to strain received was: Genotype D (90.9% JL vs 9.1% R and 0 U), genotypes F and H (100% JL vs 0% R and U), G1 (20.3% JL vs 24.6% R and 55.1% U)and 11 strains were untypable (27.4% JL vs 36.3% R and 36.3% U). Conclusion: Low PCR positivity rate enhances difficulty for laboratory confirmation of mumps infection cases in a highly immunized population. This highlights the need to further explore vaccine effectiveness and possible genetic divergence between mumps vaccine strain component and circulating genotypes which would impair vaccine immunogenicity.