RESEARCH ARTICLE **(Open Access)**

Measles Outbreak in a Roma Community in Albania

ALMA ROBO[1]*, AGIM VERCANI[2], ARTAN SIMAKU[1], ERIDA, NELAJ[1], EUGENA TOMINI[1], SILVA BINO[1]

[1]Institute of Public Health, Tirana, Albania

[2]Directorate of Public Health, Elbasan, Albania

*Corresponding author e-mail: alma.robo@gmail.com

Abstract

Background: Measles reporting is mandatory in Albania. Despite the very high immunization coverage for MMR a measles outbreak was reported by district epidemiologist to national public health institute in june 2006. All affected persons were from a Roma community living in the town of Elbasan. We report the epidemiological features of this epidemic.

Method: Active surveillance was conducted and cases analyzed had to meet the national case definition "rash maculopapular with fever". The diagnosis was established by clinical signs, confirmed by serologic results. Sera samples from all the suspected cases were tested for Measles IgM by ELISA and molecular genotyping of virus by the regional reference laboratory.

Results: According to the case definition 16 cases were actively found, 13 (77%) were female and 3 (23%) male. The mean age was 7.1 years (range: three months to 23 years). Most of the patients had Koplik spots, coryza and conjunctivitis. All cases were unvaccinated. All patients recovered and no fatal cases.

Conclusion: Gaps of low vaccine coverage facilitated the measles infection to spread. The vaccination of this community it difficult despite the commitement of the health staff. Families with their children are in ongoing migration all over the country and abroad. As a response to stop the spread of the measles outbreak, the district epidemiological service in Elbasan with the support from the national institute of public health, organised a mass vaccination campaign.

Keywords: measles, outbreak, roma, vaccination

1. Introduction

Measles is an infection target to be eliminated until the year 2015 year from the European region [1]. Although good progress has been made in controlling measles and rubella transmission in the European Region the incidence of measles was high in 2010 [2]. European countries still have to undertake further measures to reach the Measles and Rubella elimination goal [3]. High quality surveillance data is critical to monitor the progress of Measles and Rubella elimination program. High coverage with two doses of measles and rubella vaccine needs to be achieved and maintained, possible by conducting supplementary immunization activities to specifically target susceptible populations and hard-to-reach groups [3]. All countries should ensure commitment to provide sufficient resources to reach the elimination goal by engaging in multi-sectorial partnerships, targeting population pockets with low coverage rates, and by using the European Immunization Week as an opportunity to strengthen routine immunization [4,5]. In addition, health systems on the whole may benefit from this measles and rubella elimination program. Albania was among the first countries to embrace the WHO objective. Despite the very high immunization coverage for MMR two measles outbreaks, occurred in Albania during 2006-2007. Epidemiological investigation was carried out to identify sources of infection, transmission routes, and assess operational implications for elimination of the disease. With aim of measles elimination, two massive vaccination campaigns were conducted using the bivaccine measles and rubella. In the first campaign 867,000 children vaccinated during 1 to 14 November 2000. Vaccination coverage was 99%. On January 2001 the vaccine against rubella (as a bivaccine Measles/Rubella) was introduced at the National Compulsory Vaccination Schedule for all new birth cohorts as a basal vaccination at the age of 12-15 months, as well as a booster dose at the age of 5 years old. In the second campaign with the aim the elimination of congenital rubella syndrome (CRS), 444,360 women of reproductive age 15 to 35 year old were vaccinated during 15 October 2001- 31 December 2002. Vaccination coverage was 99.6% [6]. On January 2002 was set up the "Case-Based Measles-Rubella Surveillance System with Laboratory Confirmation".

On 2004, was set up the "Case - Based Hospital-Based Surveillance System of Congenital Rubella Syndrome (CRS)". Also, routine monthly Zero cases Measles and Rubella, notification is part of the integrated surveillance of infectious diseases in Albania [7].

Measles and rubella Surveillance in Albania is an active surveillance, conducted by epidemiological services of all country districts. Source of case reporting is the clinician of every health service of all levels throughout the country, from primary, secondary and tertiary health care system. Reports are forwarded to the Institute of Public Health (IPH) with the individual case reporting form accompanied with the serum-specimen for laboratory confirmation at national measles and rubella laboratory [8]. The active surveillance on vaccination coverage of measles and rubella and other EPI antigens, on the basis of the official vaccination documentation represents one of the routine activities of district epidemiological services under the IPH technical guidance and supervision. As a result of enhanced laboratory-based surveillance with confirmation of clinically suspected sporadic cases of measles and rubella the incidence of M/R in Albania was 0 over the period 2002 – 2005 [9].

Although there is a high immunization coverage, there are vaccination "gaps". This, along with the immediate withdrawal of the MMR (Chiron) vaccine on March until September 2006, due to adverse effects following vaccination what led to increasing number of vulnerable children, were the cause of small outbreaks in different districts of Albania especially among the Roma community who remains problematic regarding the immunization. A measles outbreak was reported by district epidemiologist to national public health institute in june 2006. All affected persons were from a Roma community living in the town of Elbasan. We report the epidemiological features of this epidemic.

2. Material and Methods

Active surveillance was conducted and cases analyzed had to meet the national case definition "rash maculopapular with fever". Sera samples and nasopharyngeal swabs were collected from all the suspected cases. The diagnosis was established by clinical signs, confirmed by serologic and virus isolation results. Cases were tested for Measles IgM by ELISA and virus isolation was performed in Vero-Salm cell line culture. Molecular genotyping of virus was carried out by the regional reference laboratory.

3. Results and Discussion

Epidemiological investigation was carried out to identify sources of infection, transmission routes, and assess operational implications for elimination of the disease.

Outbreak description and index case

On May 21 of the year 2006 a child from the Roma community of district of Saranda presented to the hospital with "rash and fever" and was suspected for measles. After 2 days 2 other children from this community presented to hospital with "rash and fever" also. The children belonged to the Roma community of district of Elbasan who at that time were camping in district of Saranda at their relatives. Two children tested positive for measles and one negative.

On June 21 of the year 2006 the epidemiologist of the Elbasani district reported an outbreak of "rash and fever" cases suspected for measles among the children 0-14 years old in the Roma community of district of Elbasan. Epidemiological investigation tokk plase immediately upon notification.

Figure 1. Outbreak initiation and location

The staff of health centers and child consultancies were contacted. Vaccination status was verified in relevant records. The registers of visits at pediatricians and pathologists to the neighborhood as well as the hospital emergency ward of the city were searched.

From 1. 05 to 21. 06. 2006 215 medical visits were performed by pediatricians and no diagnosis "rash with fever." was recorded and no notification on were made to the epidemiological serevice of the directorate of pubilc health of the district.

The epidemiological investigation revealed the link between these two outbreaks. The index case, a roma child came over from Greece sick, and came into contact with the above mentioned children in Saranda, who in turn transmitted the disease among the children of roma community of Elbasan when they got back home

The outbreak started in April and ended in July 2006

According to the case definition 16 cases were actively found, 13 (77%) were female and 3 (23%) male (figure 2). The mean age was 7.1 years (range: three months to 23 years). Most of the patients had Koplik spots, coryza and conjunctivitis.

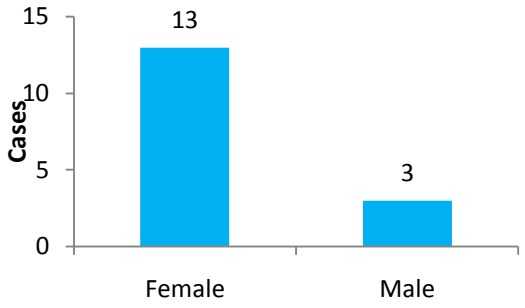

Figure 2. Distribution of cases by gender

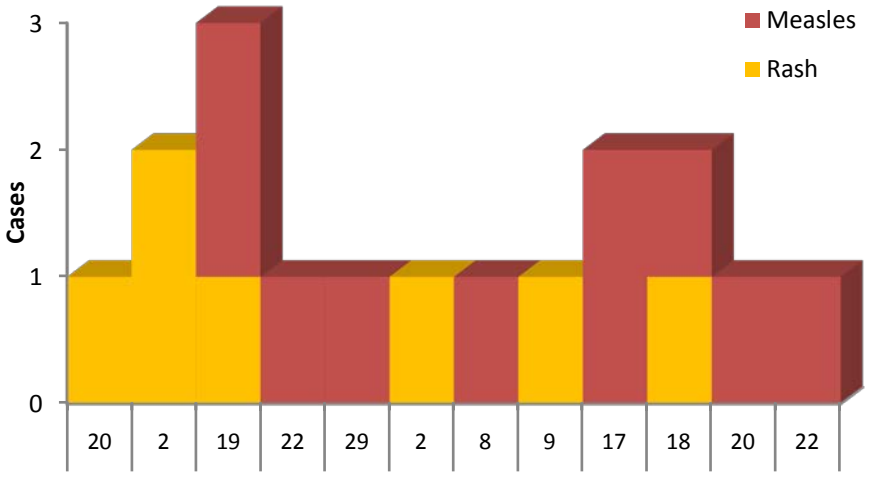

Figure 3. Epidemic curve of the outbreak

10 cases tested positive. The median serial interval between cases was 4 days.

All cases were unvaccinated. All patients recovered and no fatal cases.

Citopathic effect was observed in five of samples. Virus genotyping reveale the D4 strain which is the same with strains circulating in Greece that period of time and confirmed the findings of the epidemiological investigation in regard with the index case. Measles was imported from Greece by a Roma family and subsequently spread to the rest of roma population in several districts. As a result of uncontrolled migration of the roma population in different cities there was a common link among the outbreaks within the Roma community of Saranda, Elbasani, Tirana, Kurbin, and Durres. All of the children infected within the Roma population were unvaccinated. Pockets of low vaccine coverage individuals (Roma/children from remote rural communities) facilitated the measles infection to spread. Supplemental immunization campaigns were conducted in affected communities. The vaccination of this community it difficult despite the commitement of the health staff. Families with their children are in ongoing migration all over the country. Some families remain abroad for many years. They refuse the vaccination of their children. Threaten and intimidate the health staff when notified for vaccination dates. They show a very low level of health culture. Supplemental vaccination campaigns were conducted by the IPH in the districts of Saranda and Elbasan. [10,11]. Also the work consisted in verification of the immunization strategy situation through

documentations and interviews, verification of the status of vaccine registries in the health centers and evaluation of the work during the screening process [12,13].

4. Conclusions

Gaps of low vaccine coverage facilitated the measles infection to spread. The vaccination of this community it difficult despite the commitement of the health staff. Families with their children are in ongoing migration all over the country and abroad. As a response to stop the spread of the measles outbreak, the district epidemiological service in Elbasan with the support from the national institute of public health, organised a mass vaccination campaign.

Patients with measles often seek medical care; therefore, health-care providers should maintain a high awareness of measles and suspect measles in persons who have a febrile rash illness and clinically compatible symptoms and who have recently traveled abroad or have had contact with travelers. Providers should implement isolation precautions immediately, collect an appropriate laboratory specimen, and promptly report suspected measles case to their local health department . Early reporting and rapid control efforts by states and local public health agencies are essential to limit the spread of disease. Timely response plays an important role in limiting the size of outbreaks and preventing spread of measles, even in communities with large numbers of unvaccinated persons. Maintenance of high, 2-dose MMR vaccine coverage, early detection of cases, and rapid public health response to a case are the key factors that will lead to sustained elimination in Albania.

5. Acknowledgements

We would like to thank the staff of the Public Health Directorate of the Elbasani district and the staff of the health centers for their valueable contribution in investigation of this outbreak.

6. References

1. WHO Regional Office for Europe. **Strategic plan for measles and congenital rubella infection in the WHO European Region. Copenhagen, WHO Regional Office for Europe, 2003.** Available from: http://www.euro.who.int/document/e81567.pdf
2. World Health Organization. **Surveillance guidelines for measles, rubella and congenital rubella syndrome in the. WHO European region.** World Health Organization 2010.http://www.euro.who.int/__data/assets/pdf_file/0018/79020/E93035.pdf
3. Martin R, Deshevoi S, Buddha N, Jankovic D. **Approaching measles and rubella elimination in the European Region – need to sustain the gains.** Euro Surveill. 2009;14(50)
4. Kraemer JR, Muller CP. Measles in Europe – **There is room for improvemen**t. Lancet. 2009;373(9661):356-8. DOI:10.1016/SO140-6736(08) 61850-4.
5. **The 2011 European Regional Measles and Rubella Laboratory Network Meeting Report**. June 15th – 17th, 2011 – Bratislava, Slovakia.
6. Bino S, Kakarriqi E, Xibinaku M, Nedelcu NI, Bukli M, Emiroglu N, Amra Uzicanin A. **Measles-Rubella Mass Immunization Campaign in Albania, November 2000. Measles Elimination in Albania** • JID 2003:187(Suppl 1).
7. Kakarriqi E, Bino S. **Shqipëria në fazën e eleminimit të fruthit : (periudha 2001 e pas) : survejanca epidemiologjike e fruthit dhe e rubeolës.** ISBN 99927-724-5-X 2003.
8. Institute of Public Health-IPH (Tirana, Albania). **Albanian Infectious Diseases Integrated Surveillance System data, year 2001**.
9. Kakarriqi E. Albania: **Poliomyelitis, measles, rubella, and mumps-epidemiological background and strategies of their elimination**. ISBN 99927-724-5-X 2000.
10. Nelaj E, Preza I, Lika M, Bino S. **Measles, Tetanus and Hepatitis B vaccination.** Albanian Medical Journal. Supplement International Public Health Conference Tirana 6-7 May 2013.
11. Qirjako G, Burazeri G, Amursi E, Ndrio M, Naqi D, Bino S, Bejtja G, Bushati M. **Home visits to promote health and development of Roma children in Tirana and Durrës.** Albanian Medical Journal. Supplement International Public Health Conference Tirana 6-7 May 2013.
12. Preza I, Nelaj E, Bino S. **Vaccination of hard-to-reach population in Tirana district, 2010.** Institute of Public Health, Tirana, Albania.
13. **Centralized information system for infectious diseases (CISID**) [database on the Internet]. Copenhagen: World Health Organization regional Office for Europe. 2009. Available from: http://data.euro.who.int/cisid/?TabID=226538