DOES MEASLES BECOME A PUBLIC HEALTH PROBLEM AGAIN? MEASLES THROUGH THE EXPERIENCE OF THE CHILDREN'S INFECTIOUS DISEASES CLINIC OF SIBIU

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Abstract: *The deficiencies of measles vaccination led to the appearance of multiple cases of measles all around the world during the last four years, accompanied by complications, by prolonged hospitalization or by death. The aim of our study was to assess the cases of the Infectious Diseases Clinic from Sibiu, Romania. A prospective study was conducted between 2016 – 2017, study which includes 101 cases of measles, analyzing them in terms of demographic, clinical evolution, complications and treatment aspects. We enrolled 50 infants, 31 cases of children aged between 1-4 year old, 12 between 4-9 years old and 8 were older than 9. 63 cases were treated with antibiotics, 70 cases with corticoids. As a lack of measles vaccination in Romania during the last 10 years, the most affected were children younger than 4 years old were. It was predictable that the infants would be the main target of this disease.*

INTRODUCTION

Measles, which is an infectious disease with a high contagious index (95 – 99%), has an evolution dominated by fever, respiratory manifestations, triple catarrh, characteristic enanthem – the Koplik sign –, maculous skin eruption which generalizes in three days, the evolution being potentially severe, even deadly in 0,2 (1) – 10% of the cases – in children with severe malnutrition.(2)

International death rate has decreased with 75% during 2000 - 2013 thanks to the vaccination of 85% of the population. Incidence of measles is estimated at 36 cases per million annually, 134.200 deaths being registered, half of which being declared in India.(3,4)

Approximately 30% of the patients have respiratory, immediate neurological (encephalitis, meningoencephalitis, febrile seizures etc.) or belated neurological complications (subacute sclerosing panencephalitis may appear 6 – 10 years after infection, having an undoubtedly lethal evolution).

In Romania, the deficiencies of measles vaccination led to the appearance of multiple cases of measles all around the world during the last four years, accompanied by complications, by prolonged hospitalization or by death. 9421 cases and 34 deaths have been reported until the 29th of September 2017.(5)

PURPOSE

The evaluation of the casuistry of the Infectious Diseases Clinic of Sibiu

MATERIALS AND METHODS

Prospective study on 2016 – 2017, which includes 101 cases of measles, analyzing them demographically, clinical evolution, complications and treatment.

RESULTS

101 cases of measles had been confirmed and hospitalized at children younger than 18 years old at Children's Infectious Diseases Clinic of Sibiu during January 2016 – July 2017.

The years, gender and age distributions are represented in the figures no. 1 and 2. Although the most cases have been diagnosed to infants annually, respectively 14 out of 25 cases in 2016 and 36 cases out of 76 in 2017, 24% of the cases had been reported to 1 - 4 years old children in 2016 and 32,89% in 2017.

Figure no. 1. Years and gender distribution

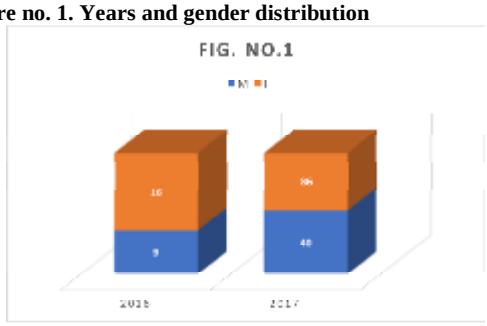
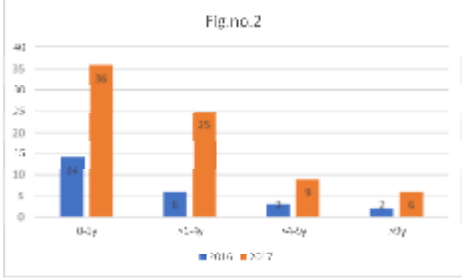


Figure no. 2. Reported cases by age and years



Although it is thought that measles is most frequent at the end of winter and in the spring (1,6,7), the diagnosed cases have not been related to the seasons. We have noticed differences between the two years, influenced by the presence of the susceptible, unvaccinated patients, being in contact with subjects with measles even during the warm season (figure no. 3). If measles had been diagnosed especially in February – April in 2016, the most cases hospitalized in 2017 had been in May and June.

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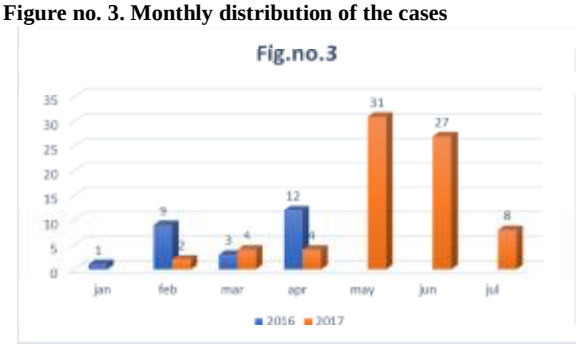
Figure no. 3. Monthly distribution of the cases



The clinical aspects have been dominated by respiratory manifestations more conspicuous in infants, due to the previous background affections, to the malnutrition, to the respiratory affection (recurrent wheezing) or heart congenital malformations (Fallot tetralogy, pulmonary stenosis, the ***persistent arterial*** duct, ventriculomegaly). 68 cases have been associated with carential anemia, 29 cases of mild/medium protein-calorie malnutrition.

17 cases needed intensive care. These were the cases of children with heart malformations, but also of those with severe acute respiratory failure, due to laryngeal croup, bronchopneumonia or severe measles pneumonia. 8 cases had neurological manifestations, one case being suspect of intra-infectious encephalitis.

The most important complications are mentioned in table no. 1. As expected, the most frequent complications were respiratory ones, caused by the direct action of the measles virus. This way, measles pneumonia was confirmed in 78 cases and the laryngeal croup in 5 cases. The bronchopneumonia was clinical and imaging diagnosed in only 6 cases. 39,6% of the cases had hepatitis, which was a surprising percentage, taking in count the lower value from other studies, in which the diarrhea, the otitis media and the pneumonia were the most frequent complications.(6,8) 8 patients had thrombocytopenia who also had hemorrhagic transformation of the skin eruption (thrombocytopenic purpura). 13 cases had thrombocytosis, this association with measles not being mentioned before.

Table no.1 Measles complications

Complications	No. cases
Laryngeal croup	5
Measles pneumonia	78
Bronchopneumonia	6
Hepatitis	40
Thrombocytosis (407.000/mm3-789.000/mm3)	13
Thrombocytopenia (149.000-99.000/mm3)	8

The bacterial overinfections are frequent in measles, secondary to the conjunctival, otic, oropharyngeal or respiratory mucosal lesions. The bacterial overinfections that we diagnosed are featured in table no. 2.

Conjunctival mucosal overinfections were the most reported overinfections, to 19 patients, determined by Staphylococcus aureus or coagulase negative staphylococci.

Biologically, 52 patients had hyponatremia, 3 were diagnosed with hypopotassemia and 6 with hyperpotassemia. Only 35 cases presented inflammatory syndrome, determined by the high CRP (C-reactive protein) level, in contrast with the values of fibrinogen. The positive procalcitonine correlated to the severe sepsis in only one case.

63 cases were treated with antibiotics, the majority of them being treated with second and third generation cephalosporins, with or without aminoglycosides, whereas vancomycin in association to meropenem was used in the cases with bronchopneumonia and severe respiratory fail.

Table no. 2. Bacterial overinfections diagnosed

Pathogenic agent (isolation number)	Purulent conjunctivitis	Otitis media with effusion	Mixed acute pharyngitis	Urinary tract infections
Staphylococcus aureus	4		6	
Staphylococcus coagulase (-)	9			
Str. pneumoniae	4	1		
Klebsiella pneumoniae	1			3
H. influenzae	1			
Enterococcus spp				3
Proteus spp				1
E coli				1

70 cases were treated with corticoids. No death has been reported.

CONCLUSIONS

The lack of measles vaccination in Romania developed in the last 10 years, the children younger than 4 years old were the most affected. It was predictable that the infants would be the main target of this disease, the increased receptivity on this group being determined by the accomplishment of the prophylaxis to the children older than one year old.

The presence of the measles epidemic in Romania is explained by the low rate of vaccinated people, because of the lack of provision of MMR (measles, mumps and rubella) vaccine on one side, because of the increasing refusal to vaccinate on the other side, as a result of important anti-vaccine movements strongly publicized.

It is absolutely necessary to involve the whole medical stuff to correctly inform the population about the importance of vaccination of the children, the risk of other vaccinable diseases to reemerge being also possible in this circumstances.

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