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RUBELLA CONTROL IN ITALY

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In Italy, rubella vaccination has been recommended since 1972 for pre-adolescent girls, and since the early 1990s for all children in the second year of life. Nevertheless, coverage in children from 12 to 24 months of age is suboptimal (i.e., 56% in 1998, 78% in 2003), with wide variations among regions.
As a result, rubella is still circulating in Italy, and in 1996 the percentage of women susceptible to rubella between 15 and 39 years of age was >5%.
Congenital rubella syndrome (CRS) was a notifiable disease between 1987 and 1991, with a range of 8-76 cases reported annually. Since 1992, national incidence data are no longer available, but local reports show that CRS cases are still occurring.
Nationwide, coordinated and uniform actions are needed to control CRS effectively. For this reason, the National Plan for the Elimination of Measles and of Congenital Rubella has recently been launched. This plan includes strategies aimed at increasing MMR vaccination coverage in children and specific control measures for congenital rubella control, i.e., improving the vaccination of susceptible women of childbearing age, and reintroducing national surveillance of CRS.

Introduction

In Italy, rubella vaccination has been recommended since 1972 and was initially targeted at pre-adolescent girls. Following the introduction of the combined measles, mumps and rubella (MMR) vaccine in the early 1990s, a universal vaccination strategy targeting 15 month old children was adopted. Since 1999, the national immunisation schedule has recommended that the first dose of MMR vaccine be given at 12 to15 months old, and a second dose at 5 to 6 or 11 to 12 years of age [1]. Immunisation of pre-adolescent girls will continue to be recommended until high levels of coverage in the second year of life are achieved.
Rubella immunisation coverage is not routinely assessed, but studies in the 1990s have shown that measles immunisation of children in their second year of life is achieved in over 90% of cases, through the use of the combined MMR vaccine [2]. Coverage of rubella vaccine in children from 12 to 24 months old is therefore similar to that of measles. Results from national EPI (Expanded Programme on Immunization) cluster sampling surveys showed coverage rates of 56% in 1998 [2], and 78% in 2003 [3]. In 2003, regional coverage rates ranged from 55% to 90%, being generally lower in southern Italy than in northern Italy.
As a result of suboptimal vaccination coverage, a high proportion of individuals remain susceptible to rubella. A serosurvey in Italy in 1996 showed that over 30% of children aged 2 to 14 and 9% of subjects over age 14, were seronegative [4]. In adolescents and adults, higher susceptibility rates were reported in males than in females (40% versus 26% in the 10-14 year age group; 21% versus 10% in the 15-19 year age group; 10% versus 7% in the 20-39 age group), as a consequence of the selective immunisation programme

aimed at pre-adolescent girls. Mean susceptibility rates among women of childbearing age were higher in southern than in northern Italy (12% versus 6% of women aged 15-39 years respectively).

Surveillance data

Systems for monitoring rubella incidence in Italy include statutory notifications and the paediatric sentinel surveillance system (SPES) [5]. In both systems, case definition is based on clinical criteria.

Rubella has been a notifiable disease since 1970; the figure shows the number of cases reported annually from 1970 to 2001. Epidemics occurred approximately every 4 to 5 years until 1997, which was the last epidemic year of the 1990s, when approximately 35 000 cases were reported. Between 1998 and 2001, disease incidence declined, with a maximum of 5500 reported cases per year. Approximately 70% of cases occurred in children under 15 years of age, with a mean annual incidence in this age group of 25 per 100 000.

According to statutory notifications, the mean age of reported cases has shifted upwards, from 9.5 years between 1976 and 1980, to 11.7 years between 1991 and 1996. Nevertheless, the incidence in women of childbearing age has slightly decreased (from 14.1/100 000 in 1976 to 1980, to 10.5 per 100 000 in 1991 to 1996), probably because of the selective immunisation programme.

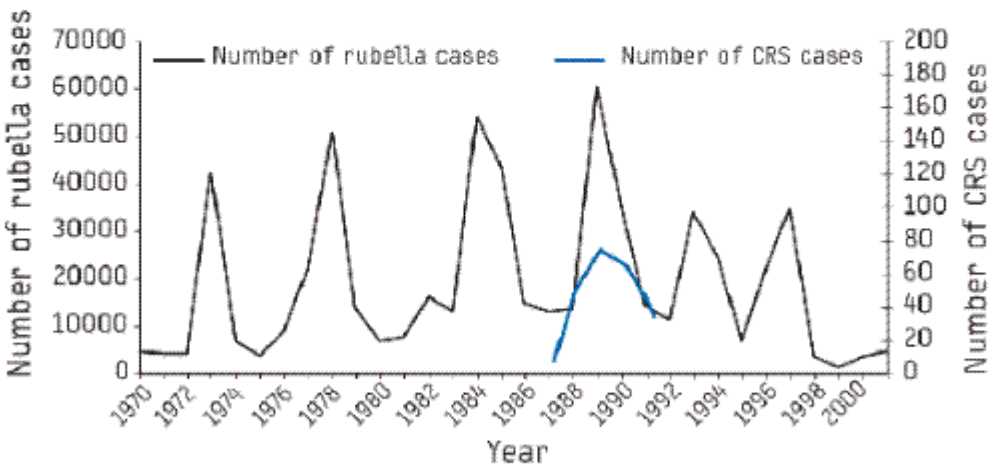
The paediatric sentinel surveillance system was launched in 2000, covering approximately 4% of the national population aged <15 years. It consists of a network of national health system primary care paediatricians who participate on a voluntary basis, and aims to monitor the incidence of several vaccine preventable diseases in a timely way. Each month, participating physicians report cases of vaccine preventable diseases seen in their practices.

SPES surveillance is considerably more sensitive than the statutory notification system: estimated incidence of rubella in children in the year 2000 was found to be 5 to 6 times higher than that estimated by statutory notifications [5]. According to SPES, the incidence of rubella was low between 2000 and 2001 but increased in 2002 when it reached an incidence of approximately 300 cases per 100 000 children. In the years 2000 to 2002, the incidence of rubella was consistently higher in central and southern Italy than in northern Italy. Most cases occurred in children between 10 and 14 years of age. However, since SPES is limited to children <15 years old, it does not provide information about rubella incidence in adults.

Congenital rubella syndrome (CRS) was reportable only between 1987 and 1991 (FIGURE). During that period, the number of reported cases ranged from a minimum of 8 cases in 1987 to a maximum of 76 cases in 1989. Since 1992, national incidence data are no longer available, nevertheless, two recent local reports confirmed the presence of congenital rubella cases in Italy. The first report was from Campania, a region in southern Italy where a registry of CRS and other perinatal infections was established in 1997 [6]. A network of maternity wards, where 89% of regional births take place, participate in the registration. Between 1997 and 2002, 18 children with CRS were identified. Two incidence peaks were observed: one in 1997 (5 cases) and another between 2001 and 2002 (4 and 3 cases respectively). Approximately 70 000 children are born each year in the Campania region; the annual incidence rate of CRS has thus always been above 1/100 000 live births, and was 6/100 000 in 2001.

FIGURE 2

Cases of rubella and Congenital Rubella Syndrome - Italy, 1970-2001



The second report is from the San Matteo Hospital in Pavia, a third level hospital in Lombardia, a region in northern Italy [7]. In 2002, 11 primary, laboratory confirmed rubella infections occurred in pregnant women and were prospectively followed. Only four of the eleven pregnancies resulted in non-infected live newborns. In all four cases, the women had acquired rubella in a period of low risk of maternal-fetal transmission (i.e., between 7 to 11 days after the last menstrual period in 3 cases, and at 28 weeks of gestation in one case). The remaining seven pregnancies (one of which was a twin pregnancy) resulted in four elective terminations, two in uterus deaths of infected fetuses, and two live births of infants with congenital infection. One of the two liveborn infants presented clinical symptoms compatible with CRS, while the other was still asymptomatic at 1 year old.
The medical histories of the 11 women revealed that, for seven women this was a first pregnancy, while four women had had previous pregnancies. Only one of the nulliparous women had been screened for rubella immunity before pregnancy and, though found to be seronegative, had not subsequently been vaccinated. Furthermore, the pluriparous women had all been found to be susceptible in previous pregnancies but had not been vaccinated after delivery.

Conclusions

To prevent CRS, high levels of immunity must be ensured among women of childbearing age, and uniformly high levels of coverage at 2 years of age must be achieved and sustained to interrupt transmission.
Serological and surveillance data indicate that rubella transmission is continuing in Italy. Although there is limited data on the incidence of CRS, the available data does indicate that it is still present.
Screening for rubella immunity is recommended and free of charge both before conception and during pregnancy, as is vaccination of women found to be susceptible. Nevertheless, our data indicate that screening and vaccination programs targeting women of childbearing age have so far been inadequate.
Nationwide, coordinated and uniform actions are needed to reduce and maintain the incidence of CRS at less than 1 case per 100 000 live births. For this reason, the national plan for the elimination of measles and of congenital rubella has recently been developed by the regional health authorities, the Istituto Superiore di Sanità (national institute of health) and the ministry of health [8]. This plan includes strategies aimed at increasing MMR vaccination coverage in children (i.e. increasing routine coverage with one dose of MMR vaccine for children aged 24 months to >95%; conducting a national catch-up vaccination campaign for children aged 6 to 13 years; achieving and sustaining a high second dose routine coverage among children aged 5 to 6 years), as well as specific control measures for congenital rubella. These include:
· evaluation of the susceptibility status of women of childbearing age at every opportunity, and their vaccination if necessary
· evaluation of the susceptibility status of all pregnant women and post partum vaccination of all women found to be susceptible;
· reintroducing national surveillance of CRS, by including it among the statutory reportable diseases.
The participation of various health providers, such as general practitioners, gynaecologists, paediatricians and public health physicians is crucial to effectively perform these activities. For this reason, the plan includes also a coordinated educational training program targeting the above mentioned professionals.

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