Louisiana

DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF HEALTH SERVICES AND ENVIRONMENTAL QUALITY
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RUBELLA - CHANGING CONCEPTS

Although rubella was first recognized as a unique clinical entity in 1881, it was not thought to be an important public health problem until 1941 when it was noted that congenital defects may follow maternal rubella infection in early pregnancy. Since the first rubella vaccine was licensed in 1969, the epidemiology of the disease has changed markedly. Congenital rubella is still with us and rubella outbreaks in hospitals and universities have spawned new interest in immunizing females of reproductive age. A new vaccine (RA 27/3 strain) has recently been introduced. Field trials with this vaccine indicate it is very effective in inducing immunity in susceptible vaccinees. This article will review these recent trends in rubella control.

Rubella - Clinical Characteristics

The incubation period of rubella is 14-21 days. Inapparent infections are common in rubella and have the same epidemiologic importance as clinical cases. Rash is the most prominent clinical feature and the first evidence of disease in approximately 90% of affected children. Teenagers and young adults frequently experience a prodome lasting several days with malaise and tender swollen postauricular and posterior cervical lymph nodes. Low grade fever, mild sore throat, coryza, cough, and conjunctivitis may also be present. The rash begins on the face and spreads rapidly. It is less prominent than in "red measles", is a paler pink color, usually remains discrete, and disappears in about three days. Antibodies appear very early and blood taken as soon as possible after the appearance of the rash and again after 4-7 days will reveal a sharp rise in HI (Hemagglutination Inhibition) antibodies. If the serum is obtained after the illness is over, HI antibodies may have already reached their maximum level, and the titer alone cannot be used to distinguish a recent infection from a remote infection or vaccination. In this case, demonstration of a significant level of short-lived rubella-specific IgM antibody confirms a recent infection.

Complications in the non-pregnant female are infrequent and mild. Arthritis, especially of the smaller joints, is the most common finding, occurring four to five times more

BULLETIN

DENGUE - MEXICO*

Recently, the Mexican government reported that cases of dengue have been confirmed in the states of Quintano Roo, Chiapas, and Oaxaca in southern Mexico. These three Mexican states are near the Yucatan, an area frequented by tourists from the United States.

The cases have been confirmed serologically as dengue type 1. Dengue type 1 outbreaks occurred in 1978 throughout the Caribbean and Central America. Although there has been no reported outbreak of dengue in the continental United States since 1934, there have been an increasing number of imported cases in the last few years. The occurrence of dengue in Mexico also confirms the spread of the virus northward during the past year and raises the possibility of dengue spreading into the United States through its southern border with Mexico. This is a possibility since several Gulf states including Louisiana have large populations of Aedes aegypti, the mosquito vector of dengue.

Travelers to southern Mexico are advised to take precautions against mosquito bites, including using commercially available mosquito repellant and wearing protective clothing whenever possible. Physicians are urged to suspect dengue fever in any traveler from Mexico, the Caribbean, or Central America who develops an acute febrile illness within two weeks of returning to the United States. The disease is characterized by severe headache, joint and muscle aches, and sometimes rash. Suspect dengue cases should have acute and convalescent sera submitted for testing to the State Division of Laboratories.

* Adapted from Center for Disease Control: Morbidity and Mortality Weekly Report, 28 (34) : 402-404, Aug. 31 1979.

frequently in females than males. Long term follow-up has not linked this complication with any form of chronic arthritis. Encephalitis and thrombocytopenia purpura are rare complications.

Congenital Rubella Syndrome (CRS)

Maternal rubella can cause fetal abnormalities, with the greatest risk during the period of organogenesis in the first trimester. Maternal infection during this trimester is associated with congenital anomalies recognizable at birth in approximately 15-20% of infants. Late manifestations, especially deafness, raise the proportion of those affected to 30-35%. Cataracts, patent ductus arteriosus, and impaired hearing are the most frequent congenital anomalies. Multisystem involvement is frequent.

Congenital rubella has been reported nationally in 471 cases since 1969. Seventeen have been reported in Louisiana since 1970. Of these 17, only 3 have been reported since 1975. One occurred earlier this year. An average of 30-35 cases per year have been reported to the National Congenital Rubella Syndrome Registry over the last few years. This low number of cases may engender optimism but there are many reasons to believe that the actual number of cases are at least ten times greater than this number:

1. 64% of the reported cases have had the diagnosis made in the 1st month of life and only 6.4% after the 1st year of life. Studies have shown, however, that there is a high incidence of auditory, ocular, and CNS abnormalities in congenital rubella syndrome children who appear clinically normal at birth and are not diagnosed until later in life. The early age of the reported cases may indicate a bias toward diagnosing and reporting severe cases that are detected early.

2. The majority of case reports have been submitted by five states (California, Colorado, Louisiana, New York, and Texas). This suggests underreporting or lack of reporting from many states.

3. The Birth Defects Monitoring Program (BDMP) follows the discharge diagnoses of approximately one million newborns per year in the United States. This is about one-third of all United States births. The BDMP has shown a slight decrease in congenital rubella since 1970 but the rates in this registry have been as much as three times higher than the number of cases reported through official morbidity reporting systems.

4. The number of abortions performed on pregnant women suspected of having rubella is unknown but certainly would add to the impact of CRS.

In summary, because of the above reasons, the number of suspect cases of congenital rubella is felt to range between 300 and 1,000 cases each year. This is at least ten times greater than the number reported to the CRS registry.[1]

Changing Epidemiology

Before vaccine became available, sizable epidemics occurred every 6-9 years, with major ones approximately every 30 years. In the United States, the disease has its peak incidence between March and May. Since the last major epidemic in 1964, outbreak occurrence has been unpredictable. The introduction of rubella vaccine has had a major effect on the age distribution of rubella cases. More than 80 million doses of vaccine have been distributed, primarily in the pre-school and elementary school populations. The effect has been a dramatic decline in the number of cases occurring in this group who had previously had the highest rates of infection. Not much change has been noted in the number of cases in the 15 years and older age group. As the number of cases in the younger age groups declines, a greater proportion of all cases each year occurs in this older group of persons. Seventy percent or more of rubella now occurs in this population group (15 years of age or older). Since the vaccine was not available until 1969, this age group did not receive the vaccine as part of their routine childhood immunizations. Current serosurveys reveal that 10-25% of adolescents and young adults are susceptible to rubella.[2]

A great deal of concern has been raised about the rubella outbreaks that are continuing to occur in secondary schools, universities, military installations and especially hospitals. A rubella outbreak among hospital personnel and patients in Colorado was recently the lead article in the MMWR, the weekly journal of the Center for Disease Control.[3] Anxiety is particularly acute when large numbers of pregnant women have been exposed in a hospital setting.

New Vaccine

The RA 27/3 strain of live rubella virus vaccine became available within the last six months in the United States. It has been used in Europe for several years. It is offered as a single antigen (Meruvax II), combined with measles vaccine (M-R-Vax II), combined with mumps vaccine (Biavax II), or combined with measles and mumps vaccine (M-M-R-II). The new vaccine is yellow when reconstituted. Previously, the vaccine was pink on reconstitution. Unlike previously available vaccines, RA 27/3 induces a broad range of antibodies that resembles the response to natural rubella infection. It also stimulates the formation of local IgA antibodies in the nasopharynx. Most experts feel that it probably offers better protection against natural infection than the older vaccine. The frequency and severity of reactions are similar to those with other rubella vaccines. Rash, fever, adenopathy, and transient arthralgias and arthritis can occur within three weeks of injection. Joint stiffness and swelling are rare in children but occur in about 20% of adult women.[4]

Vaccination of Post-pubertal Females

Rubella vaccine is a live virus vaccine and as such, there is a theoretical risk of fetal abnormality caused by the vaccine virus which crosses the placenta. However, no recognizable malformations attributable to rubella have been seen in more than 70 susceptible women who inadvertently received rubella vaccine during early pregnancy and continued their pregnancies to term. Although this limited experience is encouraging, rubella vaccine virus has been isolated from placentas and fetal tissues and the theoretical risk still remains, although it may be slight. The official stance of the USPHS is as follows:

> In view of the importance of protecting this group (post-pubertal females) against rubella, asking females if they are pregnant, excluding those who are, and explaining the theoretical risks to the others are reasonable precautions in a rubella immunization program. When practical, serologic testing of potential vaccinees in the childbearing age group may be undertaken to show susceptibility to rubella.[5]

In light of the evidence that rubella outbreaks are still a formidable problem in the teenage and young adult population and that as many as 10-25% of these age groups are susceptible according to recent serosurveys, the U.S.P.H.S. and many states are now recommending identification and vaccination of susceptibles in certain target populations. The Communicable Disease Control Section of the Louisiana Department of Health and Human Resources heartily supports these efforts to control rubella and makes the following recommendations to screen and immunize high-risk populations.

1. Prenatal screening and immediate postpartum immunization. A survey of the ten largest hospitals in the state reveals that the vast majority screen their prenatal patients for rubella. Most do not give the vaccine but do refer susceptible patients to the local health unit after delivery. We encourage all hospitals to screen patients prenatally and then immunize or refer susceptibles for immunization after delivery.

2. Hospital employees (male and female) should be immune to rubella, especially if they have close contact with pregnant females. If a hospital has an employee health system set up, new employees should be screened and immunized, if susceptible, as a condition of employment. Only three of the ten hospitals in our survey in Louisiana have a mechanism now in operation for screening and immunizing susceptible employees.

   Physicians in specialty areas with close contact with pregnant females (e.g. pediatricians, OB/GYN) should also receive rubella vaccination if they have not been previously immunized.

3. Colleges and Universities

   If other immunizations are required for admission, it is reasonable to require rubella for entering females. As a compromise alternative, college health services should offer rubella screening and vaccination to females who present for other health services.

4. Family Planning Clinics

   These provide an ideal opportunity to vaccinate susceptible females.

As a possible guide to private physicians in their own practices, the following protocol outlines the screening and immunization which has recently been implemented in all parish health units. This policy applies to all post-pubertal females presenting at the units:

1. Carefully check immunization records and/or obtain an immunization history from the patient to ascertain the patient's immunization status. If patient states rubella vaccine was received from a source other than the health unit, obtain verification from provider.

2. If there is no documentation that the patient received rubella immunization after one year of age, an H.I. blood test should be done to determine her immune status. If the test is positive (titer of 1:8 or higher) she is immune. The test results should be posted on her immunization record.

3. If the rubella H.I. test is negative, the patient should be notified and advised of the need for the rubella immunization. When the patient presents herself at the clinic for immunization, a pregnancy test is to be performed.

4. If the pregnancy test is negative and the patient requests the vaccine, the public health nurse should counsel the patient closely about sexual activity and precautions against becoming pregnant within 90 days. In some situations it may be advisable to counsel patient separately from accompanying parent. Each nurse should use her own judgment as to how to counsel the patient.

5. Obtain signature of parent or patient on the "Important Information about Measles, Mumps, and Rubella and Measles, Mumps and Rubella Vaccines" form. Proceed with the

immunization. If patient is in need of measles immunization, give MMR.

(Preferably a parent's signature on the Information Statement is recommended. However, the signature of a minor can be accepted if she is signing for herself. These patients should be treated the same as patients in VD clinics with regard to consenting to treatment on themselves.)

Note that in the above protocol, a history of natural rubella infection is not accepted in lieu of a vaccination history or a positive rubella antibody titer.

The protocol also addresses only the issue of post-pubertal females. A vaccination program for males over 15 is recommended only if they are in hospitals or clinics where they might contract rubella from infected patients or, if infected, might transmit rubella to pregnant patients. If a high risk male has no record of prior vaccination, he need not have a screening blood test before vaccination.

We hope that the above article will heighten awareness of the rubella problem in teenagers and young adults and lead to the identification and vaccination of susceptible individuals in these age groups.

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INFLUENZA VACCINE GUIDELINES 1979-80▼

Influenza vaccine for 1979-80 + consists of inactivated trivalent preparations of antigens representative of influenza viruses expected to be prevalent: A/Brazil/78 (H1N1), A/Texas/77 (H3N2), and B/Hong Kong/72. The formulation contains 7 micrograms of hemagglutinin of each antigen in each 0.5 ml dose. Persons 27 years and older require only 1 dose. Because of lack of previous contact with H1N1 strains, persons less than 27 who did not receive at least 1 dose of the 1978-79 trivalent vaccine require 2 doses of the 1979-80 vaccine. Those who received the 1978-79 vaccine require only 1 dose. The vaccine is available as whole virion (whole-virus) and subvirion (split-virus) preparations. Based on past data, split-virus vaccines have been associated with somewhat fewer side effects than whole-virus vaccines in children. Thus, only split-virus vaccines are recommended for persons less than 13 years of age. The vaccines prepared for the 1978-79 respiratory disease season contained A/USSR/77 as the H1N1 component. Because of the antigenic similarities between the A/USSR/77 and the A/Brazil/78 strains, the stocks of vaccine remaining from last year may be used, until the expiration date, according to the instructions of the package insert.

RECOMMENDED INFLUENZA VACCINE* DOSAGE, BY AGE, 1979 - 80

Age group	Product	Dosage (ml)	Number of doses
27 years and older	whole virion (whole virus) or subvirion (split virus)	0.5	1
13-26 years	whole virion (whole virus) or subvirion (split virus)	0.5	2**
3-12 years	subvirion (split virus)	0.5	2**
6-35 months***	subvirion (split virus)	0.25	2**

* Contains 7 μg each of A/Brazil/78, A/Texas/77, B/Hong Kong/72 hemagglutinin antigens in each 0.5 ml.

** 4 weeks or more between doses; both doses essential for good protection, unless the individual received at least 1 dose of 1978-79 vaccine.

*** Based on limited data. Since the likelihood of febrile convulsions is greater in this age group, special care should be taken in weighing relative risks and benefits.

\+ Official name: Influenza Virus Vaccine, Trivalent.

▼ Adapted from Center for Disease Control: Morbidity and Mortality Weekly Report, 28(20): 231-239, May 25, 1979.

SELECTED REPORTABLE DISEASES
(By Place of Residence)

STATE AND PARISH TOTALS REPORTED MORBIDITY AUGUST, 1979	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONNAIRES DISEASE	MALARIA**	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE, 1979)
	MEASLES	RUBELLA*	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1978	341	480	63	4	1	69	487	142	N.A.	3	109	76	347	3	89	9	14925	470	12
TOTAL TO DATE 1979	248	27	32	16	2	73	477	174	2	3	115	75	376	4	106	8	15147	666	20
TOTAL THIS MONTH	2	0	0	2	0	16	113	26	2	0	6	19	28	1	30	1	1941	117	3
ACADIA							2	2									6		
ALLEN						1											8		
ASCENSION																	9		
ASSUMPTION																			
AVOYELLES																	10	1	
BEAUREGARD																	4		
BIENVILLE													1				1		
BOSSIER						1		1			1						21		4
CADDO	2						1	5				5	5				172	4	3
CALCASIEU						1		1	1			1	1		7		53	1	
CALDWELL																	6		
CAMERON																	6	1	
CATAHOULA																	1		
CLAIBORNE																	1		
CONCORDIA																	4	1	
DESOTO																	2		2
EAST BATON ROUGE												1	3		2		180	15	
EAST CARROLL							1										10		
EAST FELICIANA																	8		
EVANGELINE															2				
FRANKLIN																	2		
GRANT																			
IBERIA							3	1				1					14	2	
IBERVILLE																	6	1	
JACKSON													1				1		1
JEFFERSON						3	35	1				1	1		2		119	5	
JEFFERSON DAVIS							1						1				8		
LAFAYETTE						5	21	10					1		5		26	8	
LAFOURCHE							2										11	1	
LASALLE																	3		
LINCOLN							1										27	1	
LIVINGSTON																	5	2	
MADISON							2										17		
MOREHOUSE												1					13		
NATCHITOCHES													1				16	1	
ORLEANS						2	24	2			1	3	6		4		803	34	
OUACHITA								1				2	2		6		120	8	
PLAQUEMINES											2						4		
POINTE COUPEE														1			3		
RAPIDES								1					1		2		76	9	6
RED RIVER																	1		1
RICHLAND							1										7		
SABINE																	4		
ST. BERNARD							13										4		
ST. CHARLES												1					4		
ST. HELENA													1				1		
ST. JAMES																	9		
ST. JOHN												2					4		
ST. LANDRY							3				1						2		
ST. MARTIN																	4		
ST. MARY													1				3	2	
ST. TAMMANY																	9		
TANGIPAHOA							1		1				1				20	6	
TENSAS																	1		
TERREBONNE				2		1	1									1	7		
UNION																	5	12	
VERMILION						1	1				1						2		
VERNON																	9		
WASHINGTON								1									12	1	
WEBSTER												1					16	1	2
WEST BATON ROUGE																	15		
WEST CARROLL																	8		
WEST FELICIANA						1											9		
WINN													1				3		1
OUT OF STATE																	6		

* Includes Rubella, Congenital Syndrome.
** Acquired outside United States unless otherwise stated.
N.A. - Not Available

From January 1, through August 31, 1979, the following cases were also reported: 1-Typhus Fever, Endemic; 20-Trichinosis; 1-Psittacosis; 4-Leptospirosis; 1-Rocky Mountain Spotted Fever; 1-Brucellosis; 1-Blastomycosis.