



MONTHLY MORBIDITY REPORT

PUBLIC HEALTH STATISTICS and DIVISION OF DISEASE CONTROL

DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF PREVENTIVE AND PUBLIC HEALTH SERVICES
P.O. BOX 60630, NEW ORLEANS, LOUISIANA 70160

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DELTA AGENT AND HEPATITIS B*

The delta antigen/antibody (Ag/Ab) immunological system was first described by Rizzetto and co-workers in 1977 while studying chronic hepatitis B in Italy. Delta agent, whose true nature is still not well-understood, is a highly pathogenic, hepatotropic, defective 35-37 nm virus-like particle, that requires hepatitis B virus (HBV) synthesis for its own synthesis. It shares the hepatitis B surface antigen (HBsAg) coat of the HBV, but contains an internal component consisting of delta Ag in association with ribonucleic acid (RNA). Delta has specific characteristics that suggest to some researchers a common origin with the non-A/non-B hepatitis viruses, such as, certain nuclear changes and aggregates of particles in the hepatocytes; the ability to co-infect with HBV; and a usually poor antibody response except in chronic delta infections.

Delta appears to have world-wide distribution. In some areas, i.e., southern Italy, or in some populations, i.e., drug addicts in Sweden, Denmark, Ireland and the USA, and in multiply-transfused hemophiliacs, the infection is endemic. Sero-epidemiological surveys of chronic HBsAg carriers from these groups show 40

to 72 percent prevalence of delta Ab.

Delta infection is dependent on persisting infection or concomitant infection with hepatitis B virus. Delta infections are presumably spread by the same routes as the HBV, mainly by shared contaminated hypodermic needles or transfusions of infectious blood or coagulation factor concentrates. Perinatal (vertical) transmission seems to occur only in the circumstances that permit spread of HBV. A non-parenteral mode of transmission may also exist.

Delta can cause acute or chronic hepatitis. The incubation period ranges from 3 to 13 weeks. Susceptible hosts are man and chimpanzees. Major reservoirs at present are addicts who receive drugs parenterally.

The simultaneous acquisition of delta with acute hepatitis B is not recognizable by clinical features nor by increase of severity of the illness. Rather, a biphasic pattern with double rise and fall of liver enzymes and bilirubin has been noted. Delta super-infection in a chronic carrier of HBsAg can occur at any stage of the carrier state and cause acute hepatitis with rise of the serum alanine aminotransferase that usually lasts less than 2 months.

*SOURCE: Division of Communicable Diseases and Epidemiology Newsletter, State of Maryland, February, 1984.

Delta Ag is present in the blood serum only during the first 10 days after onset of symptoms. Seroconversion to delta Ab occurs 1 to 26 weeks later, and may be short lived. The delta Ab of the IgM class, detected by specific radioimmunoassay, lasts 10 to 20 days. Immunofluorescence microscopy of liver biopsy specimens can show the Ag in the cell nuclei and occasionally in the cytoplasm. Both delta Ag and IgM delta Ab are considered markers of active infection.

Recognition of chronic delta infection is based on findings of persistently high titers of delta Ab. Unfortunately, delta tests are still not routinely available.

Thus far, studies have shown that:

- The frequency with which acute hepatitis B was succeeded by a chronic carrier state was the same whether or not the patient was infected simultaneously with the delta agent.
- In chronic HBsAg-carrying chimpanzees, delta infection caused lower HBsAg titers temporarily before delta Ab developed. In a

series of 191 human chronic carriers followed for 12 years, 19 lost the HBsAg, 9 of whom had delta markers; in 3 of them the clearance coincided with an attack of acute hepatitis.

- The hepatitis e Ag/Ab system has no bearing on the individual's risk of becoming infected with delta agent.
- Delta agent was recently implicated as the cause of exceptionally severe hepatitis among Venezuelan Indians (in which 34 of 149 patients died).

The increased morbidity of hepatitis B with delta markers may result from cumulative acute damage to the hepatocytes by the two agents. In chimpanzees, they had distinct and possibly synergistic pathogenic mechanisms: damage by HBV is dependent on the immune response of the host, while that by delta seems to result from a direct cytopathic action on the liver cells.

References are available on request - call (504) 568-5005.

Editorial Note: There has been at least one case of Delta Hepatitis disease reported from the New Orleans area. We encourage physicians to report this disease to their local health unit if they encounter cases in their practices

BULLETIN

PKU-HYPOTHYROID SCREENING LAB 10 FORM

Because of difference in performance among different lots of filter paper it is necessary that the Lot # of filter paper used for the collection of specimens match that of the filter paper used for the standards and controls.

Filter paper #31 is no longer available and the supply of standards and controls made with that lot will be exhausted by the end of 1984. Therefore, as of January 1, 1985 the Central Laboratory will not accept PKU-Hypothyroid Screening requests in LAB 10 Forms bearing filter paper #31, 1984. Only Lot #41, 1984-85 or Lot #41, 1985 will be acceptable. This new lot # is already being used, supplies can be obtained from your Parish Health Unit.

SELECTED REPORTABLE DISEASES (By Place of Residence)

STATE AND PARISH TOTALS	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED**	HEPATITIS B	LEGIONELLOSIS	MALARIA ***	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE, 1984)
	MEASLES	RUBELLA*	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1983	25	9	0	5	4	91	596	263	5	8	39	48	307	3	179	17	17640	1272	27
TOTAL TO DATE 1984	8	0	0	6	1	42	302	242	1	9	53	68	238	1	136	15	19559	935	47
TOTAL THIS MONTH	0	0	0	2	0	2	46	7	0	2	3	11	42	0	20	3	2092	122	3
ACADIA																	6	1	
ALLEN																	5		
ASCENSION																	4		
ASSUMPTION																	12		
AVOUELLES							1										2	5	1
BEAUREGARD								7									7		
BIENVILLE																	6		2
BOSSIER						1	7					1		1			23	3	6
CADDO				1			5						1				242	8	12
CALCASIEU				1			9	1				1	3		4		115	5	
CALDWELL																	2		
CAMERON																			
CATAHOULA								1					1				1		
CLAIBORNE																	11		2
CONCORDIA																	6		
DESOTO																			2
EAST BATON ROUGE											1	1					129	17	1
EAST CARROLL																	7		
EAST FELICIANA																	1		
EVANGELINE													1		2		8		
FRANKLIN													1				4		
GRANT																	3	1	
IBERIA							2										18	1	
IBERVILLE															1		2		
JACKSON							2										4		
JEFFERSON											1		1				81	4	
JEFFERSON DAVIS															1		12		
LAFAYETTE										1			1		2		82	5	
LAFOURCHE							1								2		38	3	
LASALLE																			
LINCOLN																	4		
LIVINGSTON																			
MADISON																	12		
MOREHOUSE							2										26	1	
NATCHITOCHE																	7	1	1
ORLEANS								1		1		1	20		2		711	34	1
OUACHITA													4				93	6	
PLAQUEMINES																	1	1	
POINTE COUPEE																	2	2	
RAPIDES												1	1				59	8	18
RED RIVER							1												
RICHLAND																	6		
SABINE																	1		
ST. BERNARD																	3		
ST. CHARLES																	9		
ST. HELENA																	2		
ST. JAMES													1				4	1	
ST. JOHN																	7	1	
ST. LANDRY							2					1					12	1	
ST. MARTIN															1		8	4	
ST. MARY							1					1					10	3	
ST. TAMMANY								1				3	1		1		39		
TANGIPAHOA							1									3	20	1	
TENSAS																			
TERREBONNE						1	5				1				1		82	3	
UNION													1				4		
VERMILION							5	1									5		
VERNON															1		73		1
WASHINGTON								1				3			1		6		
WEBSTER							3						1				16		3
WEST BATON ROUGE																	9		
WEST CARROLL																			
WEST FELICIANA													1				28		
WINN													1						
OUT OF STATE																	2		

* Includes Rubella, Congenital Syndrome.
 ** Includes 22 cases of Hepatitis Non A and Non B.
 *** Acquired outside United States unless otherwise stated.
 From January 1, 1984 - September 30, 1984, the following cases were also reported:
 6-Amebiasis, 60-H-Flu Meningitis, 2-Leptospirosis, 1-Poliomyelitis, Paralytic, 3-Rocky Mountain Spotted Fever,
 7-Tularemia.

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