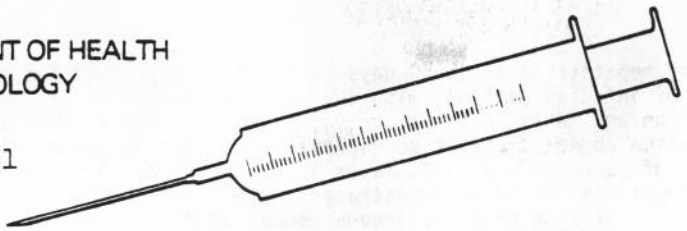
VIRGINIA DEPARTMENT OF HEALTH
DIVISION OF EPIDEMIOLOGY

TELEPHONE
(804) 786-6261

VOLUME 81 NUMBER 7
DATE *July, 1981*



EPIDEMIOLOGY BULLETIN

RECOMMENDATION OF THE PUBLIC HEALTH SERVICE IMMUNIZATION PRACTICES ADVISORY COMMITTEE

Immune Globulins for Protection against Viral Hepatitis (Part I)

INTRODUCTION

The term "viral hepatitis" is commonly used for at least 3 clinically similar diseases that are etiologically and epidemiologically distinct (1). Two of them, hepatitis A (formerly called "infectious hepatitis") and hepatitis B (formerly called "serum hepatitis"), have been recognized as separate entities since the early 1940s. The third, currently known as "non A/non B hepatitis," is probably caused by at least 2 different agents and, lacking a specific diagnostic test, remains a disease diagnosed by exclusion. It is an important cause of acute viral hepatitis in adults and is responsible for most of the post-transfusion hepatitis cases in the United States.

HEPATITIS SURVEILLANCE

Approximately 30,000 cases of hepatitis A, 16,000 cases of hepatitis B, and 8,000 cases of unspecified hepatitis are reported each year in the United States. Most patients are young adults.

IMMUNE GLOBULINS

Immune globulins used in medical practice are sterile solutions of antibodies (immunoglobulins) from human plasma. They are prepared by cold ethanol fractionation of large plasma pools and contain 10%-18% protein. In the United States, plasma is primarily obtained from professional donors. Only plasma shown to be free of hepatitis B surface antigen (HBsAg)* is used to prepare immune globulins.

Immune globulin (IG) (formerly called "immune serum globulin," ISG, or "gamma globulin") produced in the United States contains antibodies against the hepatitis A virus (anti-HAV) and the hepatitis B surface antigen (anti-HBs). Tests of lots of IG prepared since 1977 indicate that both types of antibody have uniformly been present at stable titers.

Hepatitis B immune globulin (HBIG) is an immune globulin prepared from plasma containing extremely high titers of anti-HBs.

Neither IG nor HBIG when properly prepared transmits hepatitis A or B.

Serious adverse effects from immune globulins administered as recommended have been exceedingly rare. Globulins are prepared for intramuscular use and should not be given intravenously.

Immune globulins are not contraindicated for pregnant women if needed.

HEPATITIS A

Hepatitis A is caused by the hepatitis A virus (HAV), a 27-nm RNA (ribonucleic acid) agent that is a member of the picornavirus family. The illness caused by HAV characteristically has an abrupt onset with fever, malaise, anorexia, nausea, abdominal discomfort, and jaundice. Severity is related to age. In children, most infections are asymptomatic, and illness is not accompanied by jaundice. Fatality among hospitalized patients is quite low (about 0.1%).

Hepatitis A is primarily transmitted by person-to-person contact, generally through fecal contamination. Transmission is facilitated by poor sanitation and close personal contact, including sexual exposures. Common-source infections from contaminated food and water also occur.

*Abbreviations are summarized in Table 1.

The incubation period of hepatitis A is 15-50 days (average 28-30). HAV has consistently been demonstrated in stools of infected persons, with the highest concentrations of virus being excreted late in the incubation and early in the prodromal phase of illness. Virus excretion diminishes rapidly once jaundice appears. Greatest infectivity is during the 2-week period immediately before the onset of jaundice. Viremia is of short duration. A chronic carrier state with HAV in blood or feces has not been demonstrated. Although theoretically possible, transmission of HAV by blood transfusion or percutaneous routes appears to be extremely rare.

Specific tests are available to differentiate anti-HAV of the IgM class, which appears in the acute phase of illness, from anti-HAV of the IgG class, which appears in convalescence (4-6 weeks after onset) and largely replaces IgM-class antibody. The diagnosis of acute hepatitis A is therefore confirmed by finding IgM-class anti-HAV as the predominant specific antibody in serum collected during the acute phase of disease. IgG-class anti-HAV, which replaces IgM-class antibody, remains detectable in serum for years and apparently confers life-long protection against reinfection.

Sero-epidemiologic studies show that hepatitis A is still a common infection in the United States. More than half the popultion over age 40 have serologic evidence of past infection.

IG AND HEPATITIS A

Numerous field studies conducted in the past 4 decades confirm that IG given before exposure or during the incubation period of hepatitis A is protective (2-4). Its prophylactic value is greatest (80%-90%) when given early in the incubation period and declines thereafter (4). In view of the need to give IG as soon as possible after exposure to HAV, and recognizing its intrinsic safety and the time required for and cost of antibody testing, routine serologic screening for anti-HAV before giving IG is not encouraged. Giving IG more than 2 weeks after exposure is not indicated.

RECOMMENDATIONS FOR IMMUNE GLOBULIN PROPHYLAXIS FOR HEPATITIS A

Specific recommendations for IG prophylaxis for hepatitis A depend on the nature of the HAV exposure:

Post-Exposure Prophylaxis

Person-to-person contact:

Close personal contact. IG is recommended for all household and sexual (heterosexual or homosexual) contacts of persons with hepatitis A.

TABLE 1. Hepatitis nomenclature

Abbreviation	Term	Comments
	Hepatitis A	
HAV	Hepatitis A virus	Etiologic agent of "infectious" hepatitis; probably an enterovirus; single serotype.
anti-HAV	Antibody to HAV	Detectable at onset of symptoms; lifetime persistence.
	Hepatitis B	
HBV	Hepatitis B virus	Etiologic agent of "serum" or "long-incubation" hepatitis; also known as Dane particle.
HBsAg	Hepatitis B surface antigen	Surface antigen(s) of HBV, detectable in large quantity in serum; several subtypes identified.
HBeAg	Hepatitis B e antigen	Soluble antigen; correlates with HBV replication; high titer HBV in serum, and infectivity of serum.
HBcAg	Hepatitis B core antigen	No commercial test available.
Anti-HBs	Antibody to HBsAg	Indicates past infection with and immunity to HBV, passive antibody from HBIG, or immune response from HBV vaccine.
Anti-HBe	Antibody to HBeAg	Presence in serum of HBsAg carrier suggests lower titer of HBV.
Anti-HBc	Antibody to HBcAg	Indicates past infection with HBV at some undefined time.
	Non A/non B hepatitis	
NANB	Non A/non B hepatitis	Diagnosis of exclusion; at least 2 candidate viruses; epidemiology parallels that of hepatitis B.
	Immune globulins	
IG	Immune globulin (previously ISG, immune serum globulin, or gamma globulin)	
HBIG	Hepatitis B immune globulin	

Day-care centers: Day-care centers with children in diapers can be important locales for HAV transmission (5,6). If epidemiologic evidence shows that HAV transmission is occurring in a day-care center that cares for children in diapers, IG should be administered to staff, attendees, and to all members of households whose diapered children attend. Careful hand-washing after changing diapers is important.

Schools and preschools: Contact at school is usually not an important means of transmitting hepatitis A. Routine administration of IG is not indicated for pupils and teachers in contact with a patient. However, when epidemiologic study clearly shows the existence of a school- or classroom-centered outbreak, it is reasonable to give IG to those who have close personal contact with patients.

Institutions for custodial care: Living conditions in some institutions, such as prisons and facilities for the developmentally disabled, favor transmission of hepatitis A. When outbreaks occur, giving IG to residents and staff who have close contact with patients with hepatitis A may effectively reduce the spread of disease. Depending on the epidemiologic circumstances, prophylaxis can be limited in extent or can involve the entire institution.

Hospitals: Routine IG prophylaxis for hospital personnel is not indicated. Rather, sound hygienic practices should be emphasized. Intensive continuing staff education should point out the risk of exposure to hepatitis A and emphasize precautions regarding close contact with patients with hepatitis or with infective materials (7).

Offices and factories: Routine IG administration is not indicated under the usual office or factory conditions for persons exposed to a fellow worker with hepatitis A.

Common-source exposure:

IG might be effective in preventing foodborne or waterborne hepatitis A if exposure is recognized in time. However, IG is not recommended for persons exposed to a common source of potential hepatitis infection once cases have begun to occur.

If a foodhandler is diagnosed as having hepatitis A, common-source transmission is possible. IG should be administered to other kitchen employees and may be considered for patrons if 1) the infected person is directly involved in handling foods that are not to be cooked or cooked foods before they are eaten, 2) the hygienic practices of the food-handler are deficient, and 3) consumers can be identified and treated within 2 weeks of exposure.

For postexposure IG prophylaxis, a single intramuscular dose of 0.02 ml/kg* is recommended.

Pre-Exposure Prophylaxis:

Travelers to foreign countries: The risk of hepatitis A for Americans traveling abroad appears to be small. It varies with living conditions, the prevalence of hepatitis A in the areas visited, and especially the length of stay (3,9). As with any enteric infection, the best way to prevent hepatitis A is to avoid potentially contaminated water and food.

Travelers who follow the usual tourist routes may be at no greater risk of getting hepatitis A than they would be in the United States. IG is not recommended for them. However, travelers to high-risk areas outside ordinary tourist routes may be at increased risk. For such travelers, at risk for up to 2-3 months, a single IG dose of 0.02 ml/kg is recommended. For more prolonged travel, 0.06 ml/kg should be given every 5 months.

*Milliliters/Kilogram of body weight.

Reference: MMWR, September 4, 1981/Vol. 30/No. 34

(to be continued in August issue as Part II, Hepatitis 3)

MONTH: July, 1981

DISEASE	STATE					REGIONS				
						THIS MONTH				
	THIS MONTH	LAST MONTH	TOTAL TO DATE 1981	TOTAL TO DATE 1980	MEAN 5 YEAR TO DATE	N.W.	N.	S.W.	C.	E.
CHICKENPOX	57	191	1540	345	766.6	6	7	7	3	34
MEASLES	-	3	6	298	1337.8					
MUMPS	29	18	112	49	103.0	3	2	0	1	23
PERTUSSIS	1	-	3	4	8.0			1		
RUBELLA	1	1	6	40	255.4			1		
MENINGITIS – ASEPTIC	14	4	53	55	52.8	1	2	8	2	1
BACTERIAL	12	10	128	112	87.8	2		2		8
ENCEPHALITIS – INFECTIOUS	2	2	19	11	11.0			1		1
POST-INFECTIOUS	-	-	2	2	5.8			1	1	
HEPATITIS A (INFECTIOUS)	11	18	106	177	168.0	3	3	1	1	3
B (SERUM)	24	51	269	305	205.6	5	8	4	4	3
SALMONELLOSIS	179	139	820	597	443.0	24	31	28	56	40
SHIGELLOSIS	64	167	981	59	75.8	2	1	4	54	3
TUBERCULOSIS – PULMONARY	44	38	323	296	-					
EXTRA-PULMONARY	7	5	61	66	-					
SYPHILIS (PRIMARY & SECONDARY)	65	56	395	322	324.2	0	14	3	6	28
GONORRHEA	1677	1822	12,199	12,028	13,461.2					
ROCKY MOUNTAIN SPOTTED FEVER	27	17	54	40	66.8	8	5	9	4	1
RABIES IN ANIMALS	7	8	41	8	12.0	3	1	3		
MENINGOCOCCAL INFECTIONS	5	6	65	36	40.0			1	2	2
INFLUENZA	4	16	4,852	761	4526.2		3			1
MALARIA	1	1	12	41	18.4		1			
OTHER: Hepatitis Unspecified	11	11	98	90	98.8		3		2	5

COUNTIES REPORTING ANIMAL RABIES: Fauquier-1 gray fox; 2 raccoons; Loudoun-1 bat; Rappanhannock-1 rac.; Scott-1 gray fox; Warren-1 raccoon.

OCCUPATIONAL ILLNESSES: Occupational pneumoconioses 17; Occupational dermatoses 3, Occupational hearing loss 5; Asbestosis 7; Byssinosis 2

Published Monthly by the
VIRGINIA HEALTH DEPARTMENT
Division of Epidemiology
109 Governor Street
Richmond, Virginia
23219