

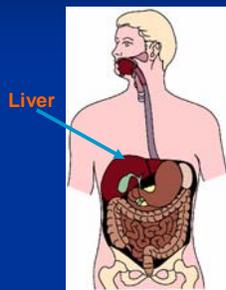
Viral Hepatitis A, B, and C

Elizabeth A. Bancroft, MD, SM
 Acute Communicable Disease Control
 County of Los Angeles
 Department of Public Health

What is Hepatitis?

- Hepatitis means inflammation of the liver
- Can be caused by a variety of exposures
 - Hepatitis viruses (A, B, C, D, and E)
 - Toxins
 - Drugs
 - Bacteria
 - Parasites
- Can be both acute and chronic

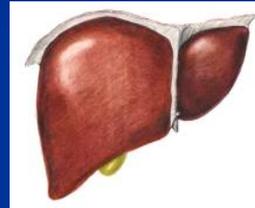
What is the Liver?



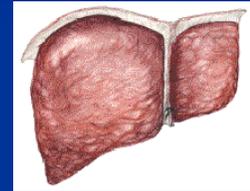
- The liver is a part of the digestive system
- The liver has four main functions:
 - Purification
 - Synthesis
 - Storage
 - Transformation

Healthy Liver vs. Sick Liver

This is a healthy liver



This is a sick, scarred liver (cirrhosis)



Symptoms of Hepatitis

- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Acute <ul style="list-style-type: none"> ■ Nausea/vomiting/diarrhea ■ Yellowing of skin/eyes ■ Fever/chills ■ Belly pain ■ Extreme tiredness ■ Change in color of stool or urine, or: ■ Nothing at all! | <ul style="list-style-type: none"> ■ Chronic <ul style="list-style-type: none"> ■ Nausea/vomiting/diarrhea ■ Yellowing of skin/eyes ■ Fever/chills ■ Belly pain ■ Extreme tiredness ■ Change in color of stool or urine, or: ■ Nothing at all! |
|---|---|

Types of Viral Hepatitis-Fecal/Oral

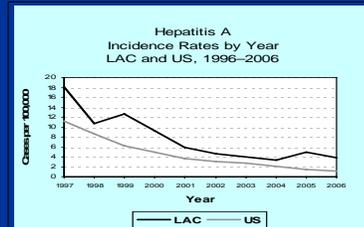
	A
Source of virus	Feces
Virus transmission	Fecal-oral
Incubation period	15-50 days
Chronic infection	No
Pre/Post Prophylaxis	Pre and Post (vaccine and IG)
Prevention	Ensure safe drinking water; risk behavior modification

Disease Severity

- Children: 70% have no symptoms
- Adults: 30% have no symptoms
- 25% of adults need to be hospitalized
- <1% die from hepatitis A
 - 1.8% in >50 years
- No chronic infection
- ~65% of adults >50 years are immune

Hepatitis A Trends

- Vaccine was introduced in 1995
- The rate of acute hepatitis A in US and LAC has steadily decreased since 1996



Risk Factors in Persons with Acute Hepatitis A

Risk Factor	% of cases
Sexual/household contact	11.0
International travel	17.5
MSM	2.5
Injection drug use	22.7
Day care	13.3
Suspected food/water outbreak	10.2
No risk factor identified	55.4

Preventing Hepatitis A

- Hygiene (e.g., hand washing)
- Sanitation (e.g., clean water sources)
- Hepatitis A vaccine (pre and post exposure)
- Immune globulin (pre and post exposure)

Pre-Exposure Interventions

- Vaccine is recommended for
 - Children under 19 years old
 - Travelers to countries with high rates of hepatitis A
 - Drug users
 - MSM
- IG is recommended for
 - Travelers to countries with high rates of hepatitis A who are leaving in < 2 weeks

Post-Exposure Interventions (within 14 days)

- Immune Globulin
 - Household and other intimate contacts
- Vaccination
 - Household and other intimate contacts <40 years

Types of Viral Hepatitis- Bloodborne

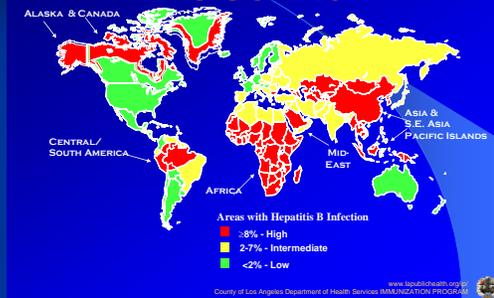
	B	C
Source of virus	Blood/body fluids	Blood/body fluids
Virus transmission	Percutaneous, permucosal	Percutaneous, permucosal
Incubation period	45-180 days	14-180 days
Chronic	Yes	Yes
Pre/Post Prophylaxis	Pre and Post	None
Prevention	Donor screening; risk behavior modification	Donor screening; risk behavior modification

Hepatitis B

Disease Severity

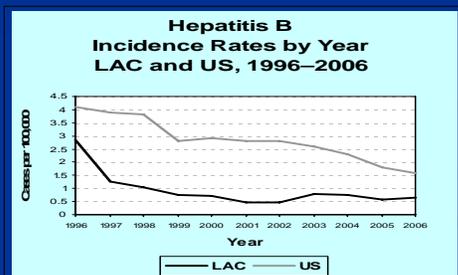
- 70% are jaundiced
- 40% hospitalized
- 0.5% death from acute disease
- 2-10% get chronic disease
 - 90% if acquired at birth
- 15-25% of those with chronic infection can get liver failure/cancer

PLACES WHERE HEPATITIS B IS COMMON



Hepatitis B Trends

- Since 1996, the rate of acute hepatitis B in US and Los Angeles County have decreased



Risk Factors for Acute Hepatitis B

Exposures during the 6 weeks -6 months before illness onset	Age Groups								
	<45		45-		Total				
	n	N	n	N	n	N			
Injection drug use	301	1,540	19.5	61	742	8.2	362	2,282	15.0
Sexual contact with hepatitis B patient	122	1,109	11.0	39	553	7.1	161	1,662	9.7
Household contact of hepatitis B patient	25	1,109	2.3	18	553	3.3	43	1,662	2.6
Male homosexual activity:	119	843	14.1	27	358	7.5	146	1,201	12.2
Medical employee with blood contact	4	1,554	0.3	7	763	0.9	11	2,317	0.5
Hemodialysis:	5	1,287	0.4	5	597	0.8	10	1,884	0.5
More than one sex partner	402	1,098	36.6	130	518	25.1	532	1,616	32.9
Heterosexual	348	1,002	34.7	118	497	23.7	466	1,499	31.1
Male homosexual or bisexual	54	96	56.3	12	21	57.1	66	117	56.4
Blood transfusion	2	1,573	0.1	13	752	1.7	15	2,325	0.6
Surgery	97	1,460	6.6	85	717	11.9	182	2,177	8.4
Percutaneous injury (e.g. needlestick)	50	1,340	3.7	25	665	3.8	75	2,005	3.7
No risk factor identified	934	1,803	51.8	513	835	61.4	1,447	2,638	54.9
No risk factor data submitted	2,279			1,187			3,466		
TOTAL	4,082			2,022			6,104		

Hepatitis B Outbreaks in LAC

- 4 Hepatitis B outbreaks in LAC since 1999
- Skilled nursing facilities and retirement centers
- All associated with contaminated diabetic equipment



Pre-Exposure Prophylaxis

- Universal vaccination of infants
- Required vaccination for school
- Vaccination also recommended for:
 - MSM
 - Injection drug users
 - Health care workers
 - Dialysis patients
 - STD clinic attendees

Post-Exposure Interventions

- Persons exposed to blood of an infected person, regular sexual partners, household and other intimate contacts
 - Hepatitis B Immune Globulin (HBIG) (within 7 days)
 - Vaccination

Treatment

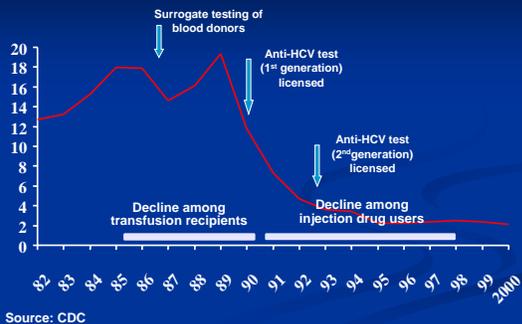
- ~8% cured
- ~45% of selected individuals are improved
- Treatment can have serious and unpleasant side effects

Hepatitis C

Disease Severity

- 70-80% get chronic disease
- 20-30% of those with chronic infection can lead to cirrhosis, liver failure, and liver cancer
- Most common reason for liver transplant

Estimated Incidence of Acute Hepatitis C United States, 1982-2000



Hepatitis C Trends

- The incidence rate of acute hepatitis C in LAC has been very low:
 - Five confirmed cases in 2004
 - Three confirmed cases in 2005
 - Four confirmed cases in 2006

Hepatitis C Trends –cont.

- 1.6% of the population with “chronic”
 - ~5 million in US
 - ~160,000 in LAC
- Most newly diagnosed cases are chronic cases
 - Exposed 20/30 years ago (ex: blood transfusion)
 - Newly presenting with symptoms

Risk Factors for Acute Hepatitis C

Exposure: during the 6 weeks -6 months before illness onset	Age Groups						
	<40*		40+		Total		
	n	N	%	n	%	n	
Injection drug use	81	150	54.0	31	118	26.3	112
Employment in medical/dental field	2	141	1.4	8	314	7.0	10
Hemodialysis	1	133	0.7	2	110	1.8	2
Sexual contact with hepatitis C patient	11	77	14.3	9	66	13.6	20
Household contact of hepatitis C patient	6	77	7.8	2	66	3.0	8
More than one sex partner	31	86	36.0	11	68	16.2	42
Blood transfusion	1	148	0.7	1	120	0.8	1
Surgery	14	125	11.2	30	109	27.5	44
Percutaneous injury (e.g. needlestick)	5	119	4.2	5	102	4.9	10
No risk factor identified	60	177	33.9	65	137	47.4	125
No risk factor data submitted	1	199	0.5	1	242	0.4	1
TOTAL	133	376	35.3	133	379	35.1	266

Healthcare Transmission

- Recognized primarily in context of outbreaks
 - Chronic hemodialysis
 - Hospital and doctor’s offices (procedures)
- Unsafe injection practices
 - Reuse of syringes and needles
 - Contaminated multiple dose medication vials

Prophylaxis- NONE!

- No prophylaxis at this time
- Offer vaccination against hepatitis A and B to protect liver
- Modify risk behaviors

Treatment

- Depending on the type of hepatitis C virus that you have, the treatment has a 40% to 80% chance of getting rid of the virus
- For people infected with the most common type of hepatitis C (genotype 1) in the United States, treatment is successful in 50% of cases
 - Studies show that African Americans have a much lower success rate with treatment—only 28%

American Liver Foundation

Thank You

