Commentaries

Use of gloves among dermatologists

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Despite evidence that rubber or latex surgeon's gloves appear to prevent or reduce the transmission of hepatitis B virus, physicians continue to perform surgical procedures without wearing gloves. Surveys regarding glove usage among members of the American Academy of Dermatology revealed that a majority of those responding do not regularly wear gloves while performing basic dermatologic procedures, such as shave and punch biopsies and curettage and desiccation. Others are still not wearing gloves regularly while performing excisional surgery, hair transplants, and dermabrasion procedures. (J AM ACAD DERMATOL 1987;17:320-3.)

Hepatitis B continues to be a hazard to health personnel. Seroepidemiologic studies show that the increased risk of hepatitis B transmission correlates directly with both the frequency and intensity of blood and blood product exposure.[1-4] Seemingly imperceptible amounts (10^7 infectivity titer/ml) of hepatitis B surface antigen (HB_sAg)–positive sera have transmitted the infection.[2,5]

The prevalence among physicians and other health care workers of serologic evidence (HB_sAg, antibody to HB_sAg [anti-HB_sAg], antibody to hepatitis B core antigen [anti-HB_cAg]) of past or present hepatitis B virus infection has been variously estimated at 13.3% to 18.5%.[1,3,4,6,7] Leyden et al[8] found serologic evidence of hepatitis B virus infection in 15.4% of a group of dermatologists attending a national meeting and concluded that "dermatologists are an at-risk population comparable to many other specialties of medicine." It was suggested that this excess risk was attributed to the performance of minor surgery of the skin by most dermatologists. There have been at least eleven examples of transmission of hepatitis B from patients to dermatologists who did not wear gloves during surgical procedures.[9]

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In this study, dermatologists were surveyed regarding their use of gloves during a variety of dermatologic procedures. Our results confirm the data obtained by Leyden et al[8] that a substantial segment of dermatologists are not using gloves during various "surgical" procedures.

MATERIALS AND METHODS

With sponsorship from the Task Force on Dermatologic Surgery of the American Academy of Dermatology (AAD), questionnaires were mailed to all AAD members in the United States requesting completion and submission of each questionnaire. Included on the questionnaire were questions regarding whether a particular procedure was performed or not and if gloves were worn during the performance of the particular procedure.

RESULTS

Of 5883 surveys mailed to AAD members in March 1984, responses were received from 2973 dermatologists, or approximately 50%. Responses from incompletely answered questionnaires were included and tallied according to the category answered. Eight "dermatologic" procedures were addressed as to whether the procedure was performed and if gloves were worn during its performance (Table I). Punch biopsy, shave biopsy, and curettage and desiccation probably represent the majority of "surgical" procedures in the dermatologist's practice. Greater than one half of the der-

Volume 17
Number 2, Part 1
August 1987

Table I. Use of gloves—1984

Procedure	Use of gloves*	Absolute frequency (No.)†	Adjusted frequency (%)‡
Drawing blood	Yes	133	9.5
	No	1270	90.5
	Don't do	1501	
	Blank	69	
Acne surgery	Yes	382	14.1
	No	2329	85.9
	Don't do	202	
	Blank	60	
Punch biopsy	Yes	1359	47.3
	No	1510	52.6
	Don't do	39	
	Blank	65	
Shave biopsy	Yes	1118	39.1
	No	1739	60.9
	Don't do	55	
	Blank	61	
Curettage and desiccation	Yes	1226	42.6
	No	1649	57.4
	Don't do	31	
	Blank	67	
Excisional surgery	Yes	2450	88.2
	No	328	11.8
	Don't do	141	
	Blank	54	
Hair transplant	Yes	460	69.9
	No	198	30.1
	Don't do	2203	
	Blank	112	
Dermabrasion	Yes	558	73.9
	No	197	26.1
	Don't do	2107	
	Blank	111	

*Yes: Wears gloves on regular basis during procedure; no: does not wear gloves on a regular basis during procedure; don't do: does not perform indicated procedure; blank: no response to yes/no/don't do question.
†Total number of responses received for that category.
‡Percentage of absolute frequency, noninclusive of "blank" and "don't do" responses for that category.

matologists who answered this question indicated that gloves were not worn during these procedures. Approximately one of eight dermatologists responded that no gloves were worn during excisional surgery. Most dermatologists who answered the survey do not perform either hair transplants or dermabrasion (apprpoximately 75%). Of those who do, 26% to 30% do not wear gloves while performing these procedures.

Table II. Use of gloves—1983*

Procedure	Use of gloves†	Absolute frequency (No.)‡	Adjusted frequency (%)§
Acne surgery	Yes	95	17.4
	No	451	82.6
	Don't do	34	
Punch biopsy	Yes	267	46.8
	No	304	53.2
	Don't do	9	
Shave biopsy	Yes	213	37.4
	No	356	62.6
	Don't do	10	
Curettage and desiccation	Yes	235	41.1
	No	337	58.9
	Don't do	8	
Excisional surgery	Yes	474	86.0
	No	77	14.0
	Don't do	18	
Hair transplants	Yes	139	66.8
	No	69	33.2
	Don't do	334	
Dermabrasion	Yes	150	71.1
	No	61	28.9
	Don't do	334	

*Modified from Leyden JJ, Smith JG Jr, Chalker DK, et al. J AM ACAD DERMATOL 1985;12:676-80.
†Yes: Wears gloves on regular basis during procedure; no: does not wear gloves on a regular basis during procedure; don't do: does not perform indicated procedure.
‡Total number of responses received for that category.
§Percentage of absolute frequency, noninclusive of "don't do" responses for that category.

DISCUSSION

Inherent in performing surgery, whether minor or major, is the exposure to blood and blood products, potentially infectious with hepatitis B virus. Besides blood and serum, the potential for a physician or other health care worker to come in contact with other body fluids or materials is great. HB_sAg has been isolated from saliva,[10-14] semen,[11,12] urine,[10] as well as cerebrospinal fluid, pleural effusions, ascites fluid, bile, breast milk,[2] and nasopharyngeal secretions.[2,14] Of interest to all dermatologists is that HB_sAg has been isolated from sweat,[2] impetiginous lesions,[14] and the exudate from hand dermatitis.[15]

Additionally, the threat of health care workers infecting patients with hepatitis B virus exists. Hadler et al[16] described the transmission of hep-

Table III. Year-to-year comparison of glove usage, 1982-1984

Procedure	Use of gloves	Smith (1982) (%)	Leyden et al (1983) (%)	Freeman et al (1984) (%)
Acne surgery	Yes		17.4	14.1
	No	93	82.6	85.9
Punch biopsy	Yes		46.8	47.3
	No	79	53.2	52.6
Shave biopsy	Yes		37.4	39.1
	No	79	62.6	60.9
Curettage and desiccation	Yes		41.1	42.6
	No		58.9	57.4
Excisional surgery	Yes		86.0	88.2
	No		14.0	11.8
Hair transplants	Yes		66.8	69.9
	No		33.2	30.1
Dermabrasion	Yes		71.1	73.9
	No		28.9	26.1

atitis B virus infection from a single dentist to six patients during acute and chronic hepatitis B infection. After the dentist began wearing gloves regularly during patient contact, no new cases of hepatitis B were found among 369 patients, despite the continued presence of HB_sAg and hepatitis B "e" antigen (HB_eAg). More recently, an outbreak of four clinical cases of hepatitis B, all serologically confirmed, was traced to an oral surgeon who had performed tooth extractions on the four patients. The oral surgeon was asymptomatic and had never had serologic markers for hepatitis tested nor had ever received the hepatitis B vaccine. Serologic testing of the surgeon revealed a hepatitis B carrier state.[17] Other similar accounts exist in the literature.[15,18-20]

Hadler et al[16] summarized that the use of gloves appeared to prevent or reduce the transmission of hepatitis B virus. Smith, Chalker, and Rogers,[9,21,24,*] have emphasized this simple, inexpensive, but effective method of preventing hepatitis B virus transmission, both patient to physician and vice versa. Synthetic materials, similar to those incorporated in production of examination gloves, used in commercially available condoms were found to stop penetration of HB_sAg; in contrast, "natural" condoms derived from sheep intestinal membranes did not stop the penetration of HB_sAg in a purely experimental in vitro situation.[25]

Several epidemiologic surveys have been published concerning the use of gloves by dermatologists during the performance of various surgical procedures. The use of gloves during procedures with the potential for blood contact is certainly not universal. Smith[21,*] found among a group of North American dermatologists that 93% did not wear gloves during acne surgery. Likewise, 79% wore no gloves while performing punch or shave biopsies, and 16% to 24% did not wear gloves for excisions or suturing. Comparing these data with data obtained by Leyden et al[8] (Table II), there seems to be a trend toward increased glove use during the performance of punch and shave biopsies and excisional surgery.

The data in the present study show adjusted relative frequencies of glove use similar to those obtained by Leyden et al[8] (Table III). The sample size surveyed in this study was approximately five times larger than the pool of survey participants studied by Leyden et al. No significant difference in the use of gloves was noted when comparing Leyden et al's study with the present survey.

Noteworthy is the fact that greater than 50% of the respondents do not wear gloves during shave or punch biopsies or during curettage and desiccation. These three procedures probably account for the majority of "surgical" procedures performed by most dermatologists, and exposure to blood and blood products potentially infectious for hepatitis B virus, therefore, still occurs at a significant rate. Despite the advent and widespread use of Heptavax-B (the hepatitis B virus vaccine now licensed and marketed by Merck Sharp & Dohme), the potential for exposure to non-A, non-B hepatitis, as well as human immunodeficiency virus, still exists. In a prospective study of a group of transfused patients, hepatitis developed in approximately 13%; 97% of the hepatitis was non-A, non-B hepatitis.[26] Aach et al[27] found that 20% to 40% of patients who contract non-A, non-B hepatitis are asymptomatic and hence un-

*Smith JG Jr, Chalker DK. Viral hepatitis: a hazard for dermatologists. Semin Dermatol 1984;3:136-9.

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able to alert the ungloved surgeon to their potential infectivity. Furthermore, a chronic, asymptomatic non-A, non-B carrier state has been documented, possibly leading to chronic hepatitis and eventual cirrhosis. While hepatitis A virus infection does not result in a chronic carrier state and has no relationship to chronic liver disease, acute hepatitis A virus infection can cause minimal hepatocellular injury and subclinical illness to extensive parenchymal involvement and fulminant hepatic failure, as can hepatitis B virus and non-A, non-B infection, as mentioned previously.[28]

Analysis of available data points to risks confronting the dermatologist, the dermatologic surgeon, and possibly the patient. While the hepatitis B virus vaccine has lessened the risk of hepatitis B virus transmission, the potential for acquiring hepatitis B virus and non-A, non-B hepatitis is still significant, as is the potential for acquiring other infectious agents via body or secretion contact. The results of this study indicate that glove usage is still far from being totally accepted in the everyday practice of dermatology. We urge dermatologists to weigh carefully their risk and to wear gloves for any procedure or examination in which contact with potentially infectious material is possible.

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