A Survey of Liver Trauma in Japan

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Summary: A survey of liver trauma in Japan was carried out. Of 979 accumulated cases, 178 (18.2%) involved penetrating injuries and 801 (81.8%) involved blunt injuries. The total number of deaths was 190 and the overall mortality was 19.4%.

Key Words: liver trauma—penetrating injury—blunt injury—traffic accident—occupational injury

Introduction

Trauma in Japan is usually due to traffic accidents, occupational injuries, self-inflicted injuries and sports injuries. Since the possession of guns is prohibited in Japan, gun-shot wounds are rare. Stab wounds are also infrequent. The present study was carried out to analyze the incidence of liver trauma resulting from injuries in Japan.

Methods

Liver trauma in Japan was analyzed with a questionnaire that was sent to 168 emergency hospitals that reported incidences of trauma to the Japanese Association for Acute Medicine. Replies were received from 66 hospitals, but only 47 (71.2%) of these reported cases of liver trauma. The reports were made after each operation (mostly after 1965) until December, 31, 1980.

Liver trauma occurring in Japan consists mainly of blunt trauma. The following classification (Makiya et al. 1972) is most commonly used: Type I, simple laceration; Type II, intermediate injury; and Type III, severe rupture (Fig. 1).

Type I is a simple, minor and superficial laceration, and includes superficial subcapsular hematoma as well as shallow stab wounds. On laparotomy, either no hemorrhage or only minor hemorrhage is seen from the lesion. This type is adequately treated by either drainage alone, or simple suture and drainage.

Type II involves more extensive destruction of the liver tissue than Type I and a moderate degree of hemorrhage. Simple sutures alone are inadequate, and debridement of the edges of the wound, resectional debridement, or ligation of the blood vessels or bile ducts in the lesion are necessary.

Type III involves a severe rupture of more than 1 segment of the liver, and is frequently accompanied by damage to the hepatic veins, intrahepatic portal vein, and inferior vena cava. Massive hemorrhaging often results in an early death. Treatment for this type consists mainly of segmental resection.

Results

Of 979 patients, 178 (18.2%) sustained
penetrating injuries and the remaining 801 (81.8%) had blunt injuries (Table 1). The penetrating injuries were due to stab wounds (173; 97.5%) and gun-shot wounds (5; 2.5%) and the blunt injuries were Type I in 334 (41.7%), Type II in 289 (36.1%) and Type III in 178 (22.2%) patients.

The outcome of treatment is shown in Table 2. A total of 190 (19.4%) of the 979 patients with liver trauma died. Of the
178 patients with penetrating injuries, 19 (10.7%) died, all from stab wounds (11.0%). Of the 801 patients with blunt injuries, 171 (21.4%) died: 28 (8.4%) with Type I, 44 (15.2%) with Type II, and 99 (55.6%) with Type III wounds.

Discussion

The incidence of blunt liver injury (81.8%) in Japan greatly exceeds that of penetrating injury (18.2%). The reasons for this are: 1) blunt injuries frequently result from traffic accidents and occupational injuries; 2) gun-shot wounds are rarely encountered, since the possession of guns is prohibited. Stab wounds are also infrequently seen.

The mortality in patients with penetrating injuries was 10.7% while that in patients with blunt injuries was 21.4%. In patients with blunt injuries, the mortality was 8.4% for Type I, 15.2% for Type II, and 55.6% for Type III lesions. These mortality rates should decrease in the future due to the rapid improvements in first aid and emergency medicine in Japan.

Reference