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## To assess cases of hemorrhagic shock in males and females: A clinical study

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### Abstract

**Background:** Life-threatening decreases in blood pressure often are associated with a state of shock. The present study was conducted to assess cases of hemorrhagic shock in males and females.

**Materials & Methods:** The present study was conducted on 118 patients of both genders. In all patients mode of injury was recorded. An estimated blood loss > 40% of blood volume and a SB  $P < 90$  mmHg was considered.

**Results:** Out of 118 patients, males were 58 and females were 60. Common cause of shock was road traffic accident seen in 62, fall in 34 and assault in 22. The difference was significant ( $P < 0.05$ ). The mean SBP in males was 124.8 mm Hg and in females was 110.6 mm Hg. Pulse in males was 108.2 beats/min and in females was 100.6. 54 males and 51 females survived. The difference was non-significant ( $P > 0.05$ ).

**Conclusion:** Authors found that females had more number of cases. The main cause was road side accident.

**Keywords:** Blood, Hemorrhagic shock, Injury

### Introduction

Life-threatening decreases in blood pressure often are associated with a state of shock – a condition in which tissue perfusion is not capable of sustaining aerobic metabolism. Shock can be produced by decreases in cardiac output (cardiogenic), by sepsis (distributive), or by decreases in intravascular volume (hypovolemic) [1]. The latter may be caused by dehydration from vomiting or diarrhea, by severe environmental fluid losses, or by rapid and substantial loss of blood. A less common form of shock (cytopathic) may occur when the mitochondria are incapable of producing the energy required to sustain cellular function [2].

Hemorrhage occurs when there is excessive external or internal blood loss. A defined volume is difficult to measure in most situations, and the loss evaluated visually is often underestimated [3]. In hemorrhagic shock, an acute reduction in blood volume leads to sympathetic compensation by peripheral vasoconstriction, tachycardia, and increased myocardial contractility, which in turn increases the myocardial demand for oxygen, to a level that cannot be maintained. Hemorrhage is a medical emergency that is frequently encountered by physicians in emergency rooms, operating rooms, and intensive care units. Significant loss of intravascular volume may lead sequentially to hemodynamic instability, decreased tissue perfusion, cellular hypoxia, organ damage, and death [4]. The present study was conducted to assess cases of hemorrhagic shock in males and females.

### Materials & Methods

The present study was conducted in the department of General medicine. It comprised of 118 patients of both genders. Ethical clearance was taken from institutional ethical committee. All patients were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc. was recorded. In all patients mode of injury was recorded. An estimated blood loss > 40% of blood volume and a SB  $P < 90$  mmHg was considered. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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## Results

**Table I:** Distribution of patients

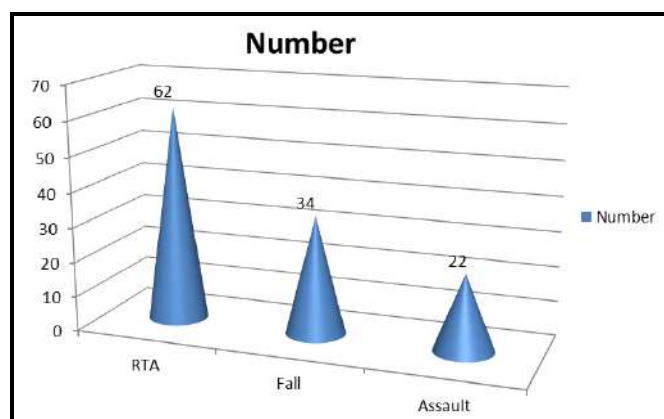
Total- 118		
Gender	Males	Females
Number	58	60

Table I shows that out of 118 patients, males were 58 and females were 60.

**Table II:** Mode of injury

Injury	Number	P value
RTA	62	0.05
Fall	34	
Assault	22	

Table II, Graph I shows that common cause of shock was road traffic accident seen in 62, fall in 34 and assault in 22. The difference was significant ( $P < 0.05$ ).

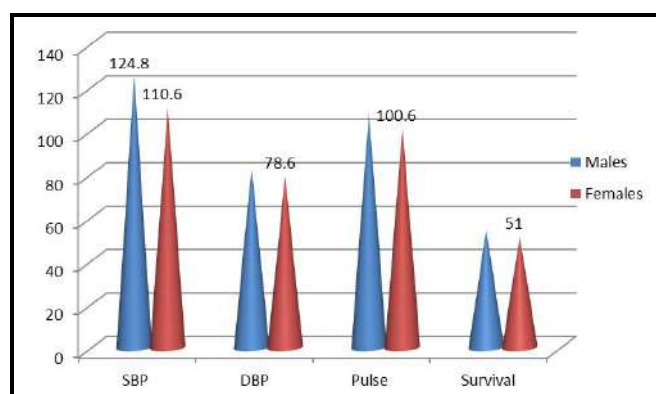


**Graph I:** Mode of injury

**Table III:** Parameters in patients

Parameters	Males	Females
SBP	124.8	110.6
DBP	82.4	78.6
Pulse	108.2	100.6
Survival	54	51

Table III, graph II shows that mean SBP in males was 124.8 mm Hg and in females was 110.6 mm Hg. Pulse in males was 108.2 beats/min and in females was 100.6. 54 males and 51 females survived. The difference was non-significant ( $P > 0.05$ ).



**Graph II:** Parameters in patients

## Discussion

Estimated blood volume (EBV) for a 70 kg person is approximately 5 l. Blood volume varies with age and physiologic state. When indexed to body weight, older individuals have a smaller blood volume. Children have EBVs of 8-9% of body weight, with infants having an EBV as high as 9-10% of their total body weight [5]. Estimating blood loss is complicated by several factors, including urinary losses and the development of tissue edema. To help guide volume replacement, hemorrhage can be divided into four classes. Class I is a non shock state, such as occurs when donating a unit of blood, whereas class IV is a preterminal event requiring immediate therapy. Massive hemorrhage may be defined as loss of total EBV within a 24-hour period, or loss of half of the EBV in a 3-hour period [6]. The present study was conducted to assess cases of hemorrhagic shock in males and females.

In present study, out of 118 patients, males were 58 and females were 60. The symptoms and sequelae of hemorrhage are ultimately related to perfusion of tissues. Loss of less than, or equal to, 15% of blood volume may not be associated with any change in blood pressure (BP), pulse, or capillary refill. Mild shock is usually easily compensated, especially in the younger, healthy woman of reproductive age. Further losses lead to tachycardia, a catecholamine response characterized by increased sympathetic tone [7]. We found that common cause of shock was road traffic accident seen in 62, fall in 34 and assault in 22. Mean SBP in males was 124.8 mm Hg and in females was 110.6 mm Hg. Pulse in males was 108.2 beats/min and in females was 100.6. 54 males and 51 females survived.

The primary goals are to stop the bleeding and to restore circulating blood volume. Resuscitation may well depend on the estimated severity of hemorrhage. It now appears that patients with moderate hypotension from bleeding may benefit by delaying massive fluid resuscitation until they reach a definitive care facility. On the other hand, the use of intravenous fluids, crystalloids or colloids, and blood products can be life saving in those patients who are in severe hemorrhagic shock. The optimal method of resuscitation has not been clearly established. A hemoglobin level of 7-8 g/dl appears to be an appropriate threshold for transfusion in critically ill patients with no evidence of tissue hypoxia. However, maintaining a higher hemoglobin level of 10 g/dl is a reasonable goal in actively bleeding patients, the elderly, or individuals who are at risk for myocardial infarction [8]. Moreover, hemoglobin concentration should not be the only therapeutic guide in actively bleeding patients. Instead, therapy should be aimed at restoring intravascular volume and adequate hemodynamic parameters.

Pankaj [9] *et al.* analyzed seven hundred and eighty one patients were under three groups, overall group including all patients ( $n = 781$ ), male group ( $n = 609$ ), and female group ( $n = 172$ ). Mortality was significantly lower in females as compared to males following. Age, blood pressure, pulse, male gender, and fall and RTC as mode of injury (MOI) were independent predictors of mortality ( $P < 0.05$ ) in overall group. Trentzsch *et al.* [10] studied 7560 males and 2774 females to analyze sex differences in trauma-hemorrhage patient. They found higher rates of multiple organ failure and sepsis ( $P < 0.001$ ) in males when compared to females.

## Conclusion

Authors found that females had more number of cases. The main cause was road side accident.

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