Power System Technology
ISSN:1000-3673

Received: 16-08-2025 Revised: 05-09-2025 Accepted: 15-10-2025

Non-Conventional Methods for Controlling Bleeding in Emergency Situations When First Aid Equipment Is Unavailable

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Everyone's Workplace/ Ministry Of National Guard

Abstract

Severe hemorrhage is one of the leading causes of preventable death in prehospital and field incidents, particularly in environments lacking standard first aid equipment. This paper aims to review and analyze non-conventional methods used to control bleeding in the absence of medical supplies, while evaluating their effectiveness, limitations, and potential risks. The paper is based on an analytical review of scientific literature related to first aid practices in resource-limited settings. The findings indicate that some alternative methods, when applied correctly, can significantly reduce blood loss and contribute to saving lives until advanced medical care becomes available.

Keywords

Hemorrhage control – First aid – Emergencies – Lack of first aid equipment – Resource-limited settings – Bleeding management.

1. Introduction

Acute external bleeding is among the most critical emergency conditions requiring immediate intervention, as the loss of large volumes of blood within minutes may lead to shock or death. In many incidents—particularly in remote areas, disaster zones, or poorly equipped environments—standard first aid tools such as sterile dressings or pressure bandages may not be available.

This highlights the importance of understanding alternative and non-conventional methods for controlling bleeding using readily available materials, provided they are applied according to scientific principles that minimize risks and preserve the victim's life.

2. Problem Statement and Significance

The core problem addressed in this paper is the limited awareness of safe alternative methods for hemorrhage control when first aid equipment is unavailable, which may lead to:

• Worsening of bleeding due to improper actions.

• Use of incorrect practices that may harm the injured person.

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• Loss of life-saving opportunities during critical minutes.

The significance of this paper lies in its focus on practical, applicable solutions in emergency situations and its support for the concept of the "first responder" in resource-limited environments.

3. Methodology

This paper is based on:

1. A review of scientific literature and international first aid guidelines.

2. Analysis of studies related to emergency and disaster first aid care.

3. Classification of non-conventional methods according to their mechanism of action, effectiveness, and potential risks.

4. Concept of Hemorrhage and Its Types

4.1 Definition of Hemorrhage

Hemorrhage is the loss of blood resulting from damage to blood vessels and may be external or internal.

4.2 Types of External Bleeding

• Arterial bleeding

• Venous bleeding

• Capillary bleeding

Arterial bleeding is considered the most dangerous due to the rapid rate of blood loss.

5. Non-Conventional Methods for Controlling Bleeding

5.1 Direct Pressure Using Available Materials

Direct pressure is the cornerstone of bleeding control and may be applied using:

• A clean piece of cloth

• The victim's clothing

• A towel or scarf

Mechanism: Temporarily closes damaged blood vessels and prevents continued blood loss.

Warning: Do not remove the cloth if it becomes soaked with blood; instead, apply additional layers with continued pressure.

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5.2 Elevation of the Injured Limb

Raising the injured limb above the level of the heart when no fractures are present.

Mechanism: Reduces blood pressure flowing to the wound site.

Effectiveness: Moderate and used as an adjunct to direct pressure.

5.3 Pressure on Proximal Arteries (Pressure Points)

Manual pressure on the artery supplying the bleeding area, such as:

• The brachial artery (for the arm).

• The femoral artery (for the leg).

Mechanism: Reduces blood flow to the bleeding site.

Warning: Requires basic anatomical knowledge.

5.4 Improvised Tourniquet

In life-threatening bleeding, improvised tourniquets may be made using:

• A belt

• A wide cloth band

• A folded cloth with a rigid object for tightening

Mechanism: Temporarily stops arterial blood flow.

Risks: Tissue damage if applied incorrectly or left in place for too long.

Guidelines: Used only when direct pressure fails

5.5 Victim Positioning and Movement Restriction

• Laying the victim flat on the ground.

• Preventing unnecessary movement.

• Maintaining warmth to prevent shock.

Mechanism: Reduces oxygen consumption and prevents worsening of bleeding

5.6 Use of Naturally Available Materials (With Extreme Caution)

In certain environments, materials such as:

• Clean, dry soil

• Clean ash

have been historically used.

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Scientific Note: These practices are not medically recommended and carry a high risk of infection; they are mentioned for historical reference only and should be discouraged.

6. Discussion

Evidence suggests that rapid intervention using simple, available means can significantly improve survival outcomes. However, the effectiveness of these methods depends on:

• Speed of intervention.

• Understanding the principles of hemorrhage control.

• Avoidance of harmful practices.

The findings emphasize the need to include these skills in community training programs, with a strong focus on scientific guidelines to minimize risks.

7. Recommendations

1. Train communities on safe alternative methods for bleeding control.

2. Incorporate these skills into basic first aid training programs.

3. Disseminate educational materials explaining correct actions and practices to avoid.

4. Promote the "Stop the Bleed" concept in under-resourced environments.

5. Conduct field studies to evaluate the real-world effectiveness of these methods.

8. Conclusion

Non-conventional methods for hemorrhage control represent an important emergency option when medical equipment is unavailable. When applied according to clear scientific principles, they may contribute significantly to saving lives. Training and public awareness remain the most critical factors in ensuring proper use and minimizing associated risks.

9. References (Sample)

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