

AXIOSTAT – A NEW GENERATION HEMOSTATIC DRESSING FOR CONTROLLING ACUTE HAEMORRHAGE IN ACCIDENT VICTIMS: A CLINICAL EVALUATION

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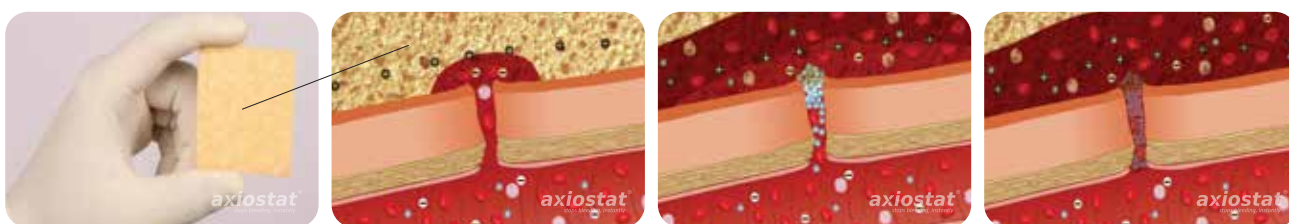
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Summary

Accidents and trauma are one of the leading causes of death and disability throughout the world. In developing countries like India, where emergency trauma care is still in its infancy, it accounts for almost 10% deaths every year. Lack of adequate pre-hospital care and uncontrolled bleeding from wound site are stated to be the prominent reasons for such deaths. In this study, we investigated the efficacy of a novel chitosan-based hemostatic dressing (Axiostat®, Axio Biosolutions, India), as a hemorrhage control device in pre-hospital scenario.

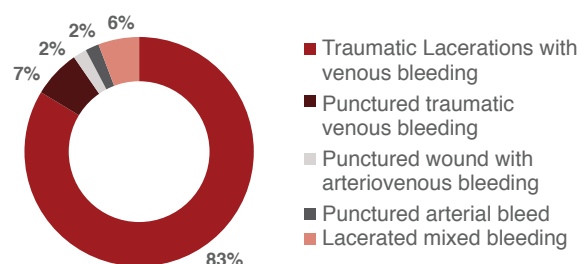
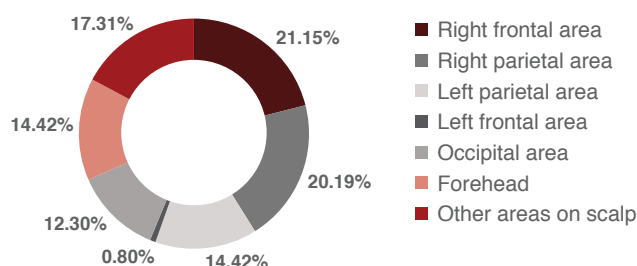
AXIOSTAT: How does it work?



Axiostat rapidly absorbs the blood plasma due to its porous nature, which leads to concentration of cellular and protein components. Its cationic nature helps in binding the negative charged blood cells. The process leads to aggregation of platelets at the wound opening and subsequent clot formation resulting in stoppage of bleeding.

Study design

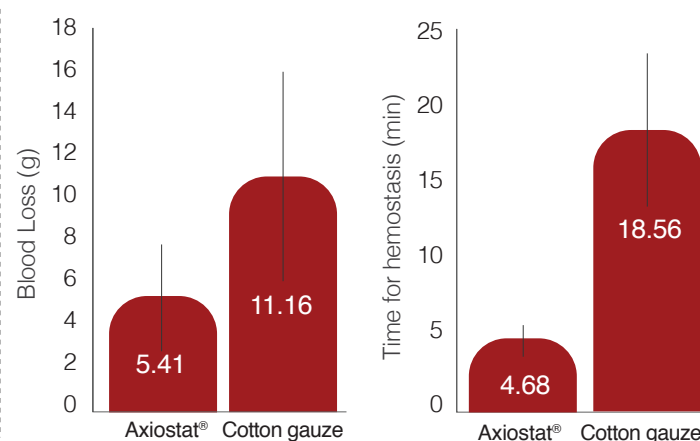
A total of 104 patients with scalp injuries were enrolled for the study. The selected patients were randomly assigned into the test and control groups. The test group received Axiostat® (47 subjects) and the control group received the conventional cotton-gauze dressing (47 subjects). The dressing was applied as detailed in the treatment protocol. The time at which the blood oozing through or from periphery of the dressing stopped, was considered as the efficacy endpoint. Finally, the total blood loss from the wound was determined by measuring weight of the dressing after first application. The wound characteristics in selected patients are presented in adjacent charts.



Results

The Axiostat® showed greater efficacy in controlling bleeding in comparison to the cotton gauze. The average time for haemostasis with cotton gauze was about 18.56 ± 5.04 minutes; while the Axiostat® achieved haemostasis in under 5 minutes (4.68 ± 1.04 min). Additionally, total blood loss from the wound site decreased by over 50% in Axiostat® treated patients compared to the control group. Additionally, no adverse reactions were reported with the use of Axiostat®. Cases of uncontrolled bleeding was observed in 21 subjects treated with cotton gauze and only 9 in Axiostat® treated group.

	Axiostat	Control
Number of subjects	47	57
Mean Age (years)	42	40
Side effects (No of cases)	0	3
Allergy (No. of cases)	1	4
Uncontrolled bleeding after first application (No. of cases)	9	21



Treatment protocol

1. The wound was carefully inspected prior to application for inclusion in the study.
2. A randomly selected dressing, either Axiostat® or cotton gauze was placed on the bleeding wound.
3. Moderate pressure was applied with fingers for about 2 minutes.
4. When bleeding was persistent, second application of Axiostat® or Cotton gauze was used above the previous one.
5. The Axiostat® dressing was kept for 30 minutes after complete hemostasis was achieved.
6. It was then removed easily by applying saline or water on to it and gently lifting it off.
7. Once hemostasis was achieved and dressing removed, patients were treated as per institutional standard of care.



Place the dressing on the wound site



Apply manual pressure for 2 min



After 30 min Irrigate with saline



Slowly remove the dressing

Conclusion

These results show that Axiostat® enables rapid haemostasis and can prevent significant blood loss during emergency trauma and accidents. Additionally, it also allows easier removal from the wound site without leaving any residue, which helps in rendering wound clean. In conclusion, the study successfully demonstrated the potential of Axiostat® as a first-line intervention in controlling acute haemorrhage in emergency care.

Acknowledgements

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