Empirical comparative study confirms thixotropic wound dressing for haemostasis

By Dr. Sven Schomaker

Haemostasis is fundamental to the prevention of excessive blood loss and for wound healing after injury, or wound setting. It is a basic prerequisite for flawless work in restorative dentistry. There are numerous tissue management systems available on the dental market for haemostasis and retraction today. Both purely mechanical techniques and locally acting chemical agents in the form of solutions, gels and pastes are available, which can be applied alone or in combination with retraction sutures.

In a German survey, 510 dental professionals tested the practicality of various haemostatic agents and compared them. The thixotropic HEMOSTASYL (Pierre Rolland, Acteon Group) achieved the best results. The gel received a rating of very good, primarily for its astringent and haemostatic effects, as well as for its handling properties.

The best means of avoiding possible bleeding complications is a conservative procedure that causes little trauma to the tissues and vessels. In many cases, a sufficient local therapy can also help prevent bleeding complications during and after surgical procedures or reconstruction.

In addition to the body’s own haemostatic mechanisms, there are a number of measures and substances in dentistry that support the achievement of haemostasis. They can be of a mechanical, chemical, thermal or surgical nature, as well as a combination of these. The products or techniques selected depends on the clinical situation (localisation, and the extent or risk of bleeding), as well as on the practitioner’s preferences.

Rapid haemostasis with aluminium chloride and kaolin

Since the products available on the dental market at the time did not adequately meet the requirements for a local haemostatic agent (risk free for patients, quick, effective and reliable bleeding control; easy handling; and fast), the Pierre Rolland company introduced a new type of gel in Germany in October 2007, which adopts a different approach to the problem of haemostasis.

HEMOSTASYL is a thixotropic product for light to moderately heavy bleeding, and contains aluminium chloride. Its angled syringe applicator facilitates direct, precise application. Indications for the haemostatic wound dressing include composite fillings, tooth preparation, impression taking, temporary crowns and bridges, root tip resections and cementation.

The haemostatic effect of HEMOSTASYL is brought about through the combination of aluminium chloride and kaolin, and is mechanically augmented by the thixotropic properties of the material. Haemostasis should begin to take effect in less than 2 minutes, after which the treated location should be free from seepage bleeding. The gel is applied with the application cannula, with no pressure exerted on the gingiva.

After haemostasis has been achieved, the turquoise-blue substance is removed with a light air and water spray and simultaneous suction (Figs. 1–4).

Methods

In order to determine whether this medical product offers advantages over other products used for haemostasis, some 1,000 sample packs were distributed to dentists, orthodontists and oral surgeons throughout Germany, along with instructions for use and a questionnaire. Of these, 510 respondents agreed to test a sample pack and return the completed questionnaire within a period of three months of receipt.

Questionnaire

The questionnaire was developed in collaboration with the Institute for Medical Biometrics and Epidemiology at the University Medical Center Hamburg.

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Eppendorf. It was divided into two sections. The first dealt with general information on other products used for haemostasis and their indications. In the second part, the study respondents were asked to evaluate HEMOSTASYL and compare it with other products with respect to haemostatic properties, handling and application time.

Results

Comparator products and indications

HEMOSTASYL was tested 2,542 times, having been applied four to ten times by the majority (69.4%) of the study respondents. During the study, its properties were compared with those of more than 15 other haemostatic products. The three most frequently mentioned comparator products (ViscoStat, Ultradent; Astringent, Ultradent; and Racagnost, Septodont) made up more than half (50%). On the question regarding primary indication, just under half of the respondents cited impression taking. The second leading indication was composite fillings, at just under 40%. This was followed, by a wide margin, by tooth preparation, which was listed as an indication by 10% of the testers. Relatively rarely cited indications included cementation, temporary crowns, bracket bonding, retainer bonding, and amalgam and CEREC restorations.

Haemostatic properties (Graphic 1)

Using the Mann-Whitney test, it was determined that the respondents (586) reported that haemostasis using the gel required little time. Only 54.7% of the respondents (177) rated the other products just as highly.

Direct comparison (Graphic 4)

As to the question regarding overall impression (haemostasis, handling/application properties and time to haemostasis), HEMOSTASYL was rated better overall by 50% of the respondents (approximately 60%) than the comparator products.

Discussion

With regard to haemostasis, HEMOSTASYL received a score of 1 or 2 more often than the other products. The aluminium chloride contained in the gel for its astringent effect thus appears to offer additional enhancement of the haemostasis. Because the gel can be applied directly and precisely in the mouth with the angled syringe applicator, it also fared better with the testers with regard to its handling and application properties. Other advantages are that it can be removed easily with an air and water spray, and is easy to detect because of the contrasting turquoise colour. HEMOSTASYL was also rated better by most of the users with respect to the time factor. Treatment (such as taking an impression or bonding inlays) can be continued immediately after haemostasis with the haemostatic wound dressing under optimal conditions.

Further advantages reported by the testers included painless treatment, particularly when the wound dressing is applied to a healthy periodontium, and good tolerability without undesirable systemic side-effects, such as can be the case with haemostatic agents containing epinephrine.

Overall HEMOSTASYL distinguishes itself with its thixotropic properties and consequent ease of application and very good adhesion to the tissue without exerting pressure, as well as the associated mechanical effect.

Conclusion

The results of this study make it evident that HEMOSTASYL is indicated for efficient haemostasis in cases of light to moderate bleeding. With clear indications for use and easy application without risk to the patient, it offers quality assurance to the dental practice.

About the Author

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