Empirical comparative study confirms thixotropic wound dressing for haemostasis

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 seeping bleeding. The gel is applied with the applicator cannula, with no pressure exerted on the gingiva.

Application of HEMOSTASYL after bleeding following dental caries treatment. (Photograph courtesy of ACTEON)

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.

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

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.

**Discussion**

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.

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