The Future Perspective of Hyaluronic Acid Gel in the Management of Aggressive Periodontitis

Pooja Bharadwaj*

1Assistant Professor, Department of Periodontology and Oral Implantology, Rishiraj College of Dental Science and Research Centre, Bhopal, Madhya Pradesh, India

*Corresponding Author: Pooja Bharadwaj, Assistant Professor, Department of Periodontology and Oral Implantology, Rishiraj College of Dental Science and Research Centre, Bhopal, Madhya Pradesh, India; Email: bharadwajpooja628@gmail.com

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Editorial

Over these past few years, there are certain recently developed therapeutic approaches in the field of Periodontology, whose main motive is to achieve the comfort level by the patient. These therapeutic approaches are either used as an adjunct to conventional treatment approaches or as a substitute for the conventional treatment approaches. However over these few years one of the material on which various researches have been carried out is the hyaluronic acid upon which when investigations carried out indicated to be used in regenerative surgery as a membrane as mainly because of its bacteriostatic effects (particularly Aggregatibacter actinomycetemcomitans, Prevotella oris and Staphylococcus aureus) on wound contamination. Thus taking the bacteriostatic property of hyaluronic acid into consideration this editorial review highlights that how hyaluronic acid gel in future can be used as a useful adjunct in the management of aggressive periodontitis cases.

The main etiological factor for the causation of gingivitis and periodontitis is the plaque and now a recent concept has come into existence and that is the host response [1,2]. Though plaque is the most common causative factor in the progression of gingivitis to periodontitis, there are certain other factors as well which can either modify the response of host to the cause periodontitis, or to solely act as a causative factor for the progression to periodontitis. Some of these factors can be systemic factors such as diabetes, environmental factors such as smoking, and genetic factors [3]. Talking about the genetic factors so one of the type of periodontitis in
which a positive genetic history is a sole causative factor is the aggressive periodontitis which in fact is also a reliable diagnostic indicator that a person is suffering from aggressive periodontitis. In aggressive periodontitis because of the insufficiency of deposits in contrast to disease severity, earlier it was difficult to believe that any role of microbe can be present for this disease severity but later on it was proved through various correlation studies that a strong microbe i.e. Aggregatibacter actinomycetemcomitans is strongly correlated with aggressive periodontitis.

New therapeutic approaches are evolving in the field of Periodontology. From using invasive approaches to conventional approaches technology had evolved so far [4-6]. Among these researches have also been carried out on hyaluronic acid. In dentistry, hyaluronic acid use came into existence by the experiments carried out in 1997 by Pagnacco and Vangelisti [7]. Gingiva and Periodontal ligament are the richest source of Hyaluronic acid followed by cementum and alveolar bone which have the least content of hyaluronic acid. Hyaluronic acid is synthesized in keratinocytes of gingiva fibroblast of periodontal ligament cementoblast of cementum and osteoblast of alveolar bone by an enzyme called as hyaluron synthase.

In the field of periodontology, hyaluronic acid shows the following properties as proven by the previous experiments [9]. Anti-inflammatory, Anti-oedematous effect, Bacteriostatic effect: Gingivitis and Periodontitis is a microbial infection and the commonly involves Aggregatibacter actinomycetemcomitans, Prevotella intermedia, Porphyromonas gingivalis. Hyaluronic acid works by reducing the concentration of these microbes and hence promote the rapid healing of the gingival tissue.

Since aggressive periodontitis is a disease that is caused by Aggregatibacter actinomycetemcomitans and this microbe has a strong tendency to be transmitted genetically resulting in a strong genetic history of this disease as well as due to the virulence factors produced by this microbe can result in inability of the phagocytic action of polymorphonuclear leukocytes and macrophages as a result of which there is a rapid progression of the disease and conversion of localized form of aggressive periodontitis into the generalized one [4]. So if hyaluronic acid is used during the phase 1 therapy along with the systemic antibiotics can result in improving the infiltration of inflammatory cells into the diseased site as a result of which there is an increase in the phagocytic capability of neutrophils and macrophages thereby preventing the proliferation of Aggregatibacter actinomycetemcomitans and thus resulting in improvement in the condition of Aggressive Periodontitis [10]. Though a much greater number of studies needs to be carried out in proving that hyaluronic acid gel could be used as a future perspective in managing aggressive periodontitis cases.