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INTISARI

NUNKY ARUM GAYATRI

PENGARUH PERENDAMAN KAWAT *AUSTENITIC STAINLESS STEEL* DALAM OBAT KUMUR *CHLORHEXIDINE 0,2%* DAN *NATRIUM FLUORIDE 0,05%* TERHADAP GAYA FRIKSI DARI KEKASARAN PERMUKAAN KAWAT

Salah satu metode yang paling umum digunakan untuk menggerakkan gigi pada perawatan ortodonti yaitu metode mekanika peluncuran. Proses tersebut akan menimbulkan friksi antara braket dan kawat ortodonti. Friksi merupakan gaya gesek yang timbul akibat adanya dua permukaan keras yang saling bertemu. Besarnya gaya friksi dipengaruhi oleh kekasaran permukaan kawat yang ditimbulkan oleh proses korosi karena terendam dalam obat kumur. Penelitian ini bertujuan untuk mengetahui perbandingan pengaruh perendaman kawat *austenitic stainless steel* dalam obat kumur *chlorhexidine 0,2%* dan *natrium fluoride 0,05%* terhadap gaya friksi dari kekasaran permukaan kawat. Jenis penelitian eksperimental laboratoris dengan rancangan *post test only control group design*. Objek penelitian adalah 120 potong kawat *austenitic stainless steel rectangular 0,019 x 0,025 inci*, dibagi menjadi 12 kelompok, setiap kelompok terdiri dari 10 potong kawat. Masing-masing kelompok perlakuan dan kontrol direndam selama 5, 6, 7, dan 8 hari. Pengamatan dengan *Scanning Electron Microscope (SEM)* dilakukan terhadap 1 sampel setiap kelompok. Gaya friksi diukur dengan alat *Universal Testing Machine*. Data dianalisis dengan menggunakan *One Way Anova*. Hasil penelitian menunjukkan bahwa besar gaya friksi antara kawat *austenitic stainless steel* yang direndam dalam masing-masing kelompok perlakuan dan kontrol dalam beberapa hari menunjukkan tidak berbeda ($p > 0,05$), sedangkan hasil penelitian gaya friksi kawat *austenitic stainless steel* berdasarkan jenis obat kumur yang diberikan memiliki perbedaan yang bermakna ($p < 0,05$). Kesimpulannya gaya friksi kawat *austenitic stainless steel* yang direndam dalam obat kumur *chlorhexidine 0,2%* lebih besar daripada *natrium fluoride 0,05%* dikarenakan kekasaran permukaan lebih banyak karena kondisi asam lebih besar

Kata kunci : Gaya friksi, kekasaran permukaan, kawat *austenitic stainless steel*, *chlorhexidine 0,2%*, *natrium fluoride 0,05%*, saliva buatan

ABSTRACT

NUNKY ARUM GAYATRI

EFFECT OF AUSTENITIC STAINLESS STEEL WIRE IMMERSSED IN CHLORHEXIDINE 0.2% AND NATRIUM FLUORIDE 0.05% MOUTHWASHES AGAINST THE FRICTION OF THE SURFACE ROUGHNESS WIRE

One of the most commonly used methods to move teeth in orthodontic treatment is to use sliding mechanics. The process will cause friction between the bracket and orthodontic wire. Friction is a frictional force arising from two hard surfaces that meet each other. The amount of frictional force is affected by the surface roughness of the wire caused by the corrosion process because it is submerged in mouthwash. This study aims to determine the comparison of the effect of immersion in austenitic stainless steel wire in a chlorhexidine 0.2% and natrium fluoride 0.05% mouthwashes on the frictional force of a wire surface roughness. This type of experimental laboratory research with post test only control group design. The object of research is 120 pieces of austenitic stainless steel rectangular 0.019 x 0.025 inches, divided into 12 groups, each group consisting of 10 pieces of wire. Each treatment and control group was immersed for 5, 6, 7, and 8 days. Observations by Scanning Electron Microscope (SEM) were carried out on 1 sample per group. Frictional force is measured by the Universal Testing Machine. Data were analyzed using One Way Anova. The results showed that the friction force between austenitic stainless steel wire immersed in each treatment and control group within a few days showed no difference ($p > 0.05$), while the results of austenitic stainless steel wire friction based on the type of mouthwash were given have a significant difference ($p < 0.05$). In conclusion, the friction force of austenitic stainless steel wire immersed in chlorhexidine mouthwash is 0.2% greater than 0.05% sodium fluoride due to more surface roughness due to greater acidic conditions.

Keywords: Friction force, surface roughness, austenitic stainless steel wire, chlorhexidine 0.2%, sodium fluoride 0.05%, artificial saliva