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BUILDER

A QUARTERLY PUBLICATION OF HEALTH CARE TRUST FOR GENERAL DENTAL PRACTITIONERS

FROM THE EDITOR'S DESK

In life, nothing remains static - either it progresses or regresses. Same applies to our dental profession also. Either your knowledge and dexterity improves or it deteriorates. Let us do a soul searching. Is there a stagnation in our dental practice? What is the status of profitability and inflow of patients? Is there a steady increase in productivity? What is the labour versus rewards situation?

'Your Practice Builder' is an attempt at increasing and updating the knowledge of general dental practitioners. The Health Care Trust building is progressing. Once it is completed, we can have continuing education courses with hands an experience on patients, to improve the dexterity.

A less than expected response to our dedicated work spurred us to hold some discussions. One major point raised was the subscription rate. Comparison was being made between the price of a news paper and the dental news letter. The cost of the news letter is not the cost of the number of pages it contains. It should be seen against the information it carries which will definitely improve your practice and thus bring in financial benefits, in far greater proportion to the money paid.

The most precious possession of any human being is time. At the Trust, we are devoting our valuable time to collect information (which involves high cost), selecting materials relevant for our type of practice, then editing them to be printed. The Trust remains, and will continue to remain a non profit venture.

Advertisements are hard to come by. YPB being a professional news letter, its circulation is limited. The wider the circulation, the lower the cost becomes. Inspite of the large number of dentists in the country, the number of subscribers are nominal. If this number can be increased, we can definitely bring the subscription rate down. We would love to bring the subscription rate down to half, but for that, the number of copies printed must rise.

As we are stepping into the third year of publication, we are making special offers of Rs. 150/- for two years subscription and Rs. 500/- for life membership*.

YPB is a practice oriented news letter and any relevant articles are most welcome.

For advanced periodontal lesions, instead of straightaway heading for surgical treatment, another treatment option is available now. Systemic metronidazole treatment can bring about response in many cases, sparing the patient of surgical trauma. And it is economical too. A systematic approach to deal with dentin hypersensitivity has been outlined.

Laser application for hard and soft tissue procedures can free the patients of pain, blood, noise and vibration.

Some useful tips are offered for orthodontic treatment and from this issue, we are starting a series for better understanding of endodontic treatment.

And don't forget to take a look at the new products.

— Dr. Beena Rani Goel, M.D.S.

INSIDE

* Life members will receive a free copy of "Restorative Dentistry in daily practice" until stocks last.

CHANGING CONCEPTS IN PERIODONTAL TREATMENT

Periodontal disease is caused by overgrowth of bacteria on the dentogingival surfaces. The treatment is aimed at checking this bacterial overgrowth by careful debridement of the tooth surfaces. Periodontal surgery is performed to provide better access for debridement. In recent years, there is a shift in the treatment paradigm. Systemic antibiotics are administered to those 15 to 20% of patients who do not respond to conventional debridement procedure.

The non specific plaque hypothesis is the prevailing basis of treatment for periodontal disease. According to this, the overgrowth of **any** or all bacterial species on the tooth surfaces causes an inflammatory response in the adjacent gingival tissues. Keeping the bacterial load below the level that starts tissue loss has been the goal of periodontal therapy. This has been accomplished by debridement of the tooth surfaces and access surgeries.

The specific plaque hypothesis is being used to guide the treatment recently. This is based on research findings of the last 20 years, which indicate that most forms of periodontal disease appear to be specific bacterial infections. Findings of Walter J. Loesche et al indicate that about 90% of periodontitis patients have an anaerobic bacterial infection. An overgrowth of spirochaetes was seen associated with all forms of untreated adult periodontitis, early onset periodontitis, and localised juvenile periodontitis. Porphyromonas gingivalis, Bacteroides forsythus, and Treponema denticola are present in high numbers in shallow and deep pockets in periodontal patients. Since P gingivalis, B forsythus, T denticola and spirochaetes are anaerobes, it is hypothesised that most forms of periodontal disease are **anaerobic** infections.

Anaerobic infections have been treated by antimicrobials such as metronidazole, because of a broad spectum of activity which is specific for anaerobes. Walter J. Loesche reports that **metronidazole** seems to be the drug of choice because of its relative safety. Its most serious side effect is an Antabuse type of reaction, which may occur in a small percentage of individuals who drink alcoholic beverages. Another advantage of metronidazole is that clinical resistance by susceptible anaerobes have not been noticed even after 46 years of medical use.

Doxycycline is the second drug of choice, however, antibiotic resistant strains emerge more frequently with its use.

The propensity of clindamycine to cause ulcerative colitis in some patients makes it the drug of third choice.

Seven days course of metronidazole is to be given after completion of oral prophylaxis for more effectiveness, because, for a given dose of metronidazole, the results will be better if there are fewer bacteria on the tooth surfaces. After the systemic treatment with metronidazole, 62% reduction in the need for periodontal surgery has been reported.

A second round of antibiotic course for one week can be given if the improvement is marginal.

Walter J. Loesche et al report that after two courses of systemic treatment, if surgical need is still felt on recall appointment, they can be retreated with locally delivered 20% metronidazole in ethylcellulose strips, or 20% chlorhexidine in ethyl cellulose strips. Any teeth still in need of surgery or extraction after two rounds of systemic antimicrobial treatment and three rounds of locally delivered antimicrobials for one week each, should receive the necessary surgical procedure.

The dentists and patients can now have a treatment option in advanced forms of periodontal disease and consideration such as cost effectiveness may play a role in decision making.

Ref : 1. Compendium of Cont. Ed. in dent. 18 (3) : 221-232, 1997.

2. Oral surg. Oral Med. Oral Path. 81 (5) : 533 - 43, 1996.

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TELL YOUR PATIENTS

Internal Medicine News, (Nov. 15, 1997, pages 10-11) reports on the annual meeting of the American Academy of Periodontology in San Deigo.

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1. Periodontal disease is a risk factor for cardiovascular disease, as strong as smoking.
2. Upto 29% of deaths due to coronary vascular disease might be attributable to oral infection.
3. Diabetics are 3 times as likely as nondiabetics to develop periodontal disease.

DENTIN HYPERSENSITIVITY

Managing dentin hypersensitivity is a challenging issue in dental practice. Dentin Hypersensitivity is a common intermittent chronic sensation affecting people when they eat, drink, touch their teeth, or when there is a cold blast of air. The concern may cause psychological tension that can further reduce the tolerance threshold.

Causes of dentin hypersensitivity

Sensitivity is not encountered in teeth where the enamel and cementum are intact. When the underlying dentin is exposed by enamel loss or denudation of root surface, it can lead to dentin hyper sensitivity

Enamel loss may be the result of

— occlusal wear,
— Dietary erosion
— Tooth brush abrasion
— Parafunctional habits

Root surface may be denuded because of :

— Aging
— Gingival recession
— Incorrect tooth brushing habits
— Tooth abnormally positioned in the arch
— Chronic periodontal disease
— Periodontal surgery
— Root preparation.

The hypothesis is that pain occurs when cells within exposed dental tubules are stimulated. Occlusion of dentinal tubules would appear an essential pre-requisite for an effective desensitising agent.

Treatment of hypersensitivity is dependent upon factors such as :

— age
— oral hygiene
— Frequency of ingestion of acidic foods and beverages.

Treatment modalities fall into two main categories:

— Chemical
— Physical

Chemical desensitising agents are classified according to their action.

— anti - inflammatory e.g. - Corticosteroids
— Protein precipitating e.g. silver nitrate, zinc chloride
— tubule occluding e.g. strontium chloride
— Tubule sealants e.g. - Calcium hydroxide, potassium nitrate, fluorides, fluoride iontophoresis and potassium oxalate.

Physical agents composite resins, glass ionomers, varnishes, sealants, soft tissue grafts, Laser sealing of the tubules.

Treatment approaches

First of all, a thorough examination need be done to eliminate other pain sources and to evaluate the cause. Check for active carious lesions, a nonvital tooth, or occlusal interferences.

Once the cause of hypersensitivity is ascertained, explain the problem and its causes to the patient. The fact that there is no irreversible problem will reassure the patient.

Correct any preventable causes like, accumulation of plaque, excessive tooth brushing with a hard tooth brush, and periodontal disease. If the patient has a high frequency of ingestion of acidic foods and beverages, nutritional counselling should be part of the treatment.

A tooth paste containing **potassium nitrate** should be advised for a 2 to 6 weeks trial. Potassium nitrate occludes the tubules through crystallisation. Potassium has an inhibitory property which may biochemically block the intadental nerve response, altering the excitability of sensory nerves. Most patients respond well to this initial treatment, which can be assessed in about four weeks.

If the teeth remain sensitive after the initial treatment, use in-office treatment with potassium oxalate solution, sodium fluoride or calcium hydroxide. Potassium oxalate appears to deposit oxalate salts within the dentinal tubules to occlude them, thus

altering the fluid movement and decreasing nerve irritability.

Sodium fluoride or calcium hydroxide (Dycal) can be applied on the exposed dentin and burnished, without local anaesthesia, until all sensitivity has disappeared. Calcium hydroxide occludes the tubules by providing calcium ions that may tie up the loose protein radicals, increasing the remineralisation of exposed dentin. The initial application is successful 80 to 90% of the time but its action decreases rapidly and it often has to be reapplied.

Fluoride iontophoresis can also occlude dentin tubules. Two percent sodium fluoride is applied using a special electric iontophoresis unit. The unit creates a positive charge on the tooth surface so that the negatively charged fluoride is forced deep into the, tubule. It has been shown to provide immediate relief.

Varnishes and sealants which contain copal and cyanoacrylate respectively, are effective at first, but abrade quickly and must be reapplied. Hydrophylic sealants such as methacryloxy ethyl trimellitate, an ingredient in Amalgambond (Parkell), are also being used as desensitizers.

Recent literature suggests that sealing tubules by laser may be effective in managing hypersensitivity.

Soft tissue grafts can be performed on teeth that have lost their attached gingiva.

As a last resort, it may be necessary in some cases to prepare the tooth conservatively and restore them. Composite resin with glass ionomer liner restorations have been found to significantly reduce hypersensitivity. Glass ionomer restorations and restorations with composite resin and a dentin bonding agent also reduce sensitivity, but 20 to 30 percent of the teeth with these restorations have been found to have increased sensitivity at a six month evaluation by Powell L.V. et al.

Ref : 1. J-Can-Dent-Assoc. 56 (12) : 1101 - 1990
2. J. Am. Dent. Assoc. 121(6) : 694-6, 1990.
3. J.Can. Dent. Assoc. 56(11):1035-41, 1990.
4. J.Am. Dent. Assoc. 123 (4) : 57 - 61. 1992

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LASERS IN DENTISTRY

Premier Laser Systems Inc. California has received clearance from the FDA for its Centauri Erbium Yttrium Aluminium Garnet laser system.

Centauri is the first dental laser system to be cleared by the FDA for hard and soft tissue applications. With its use, patients are freed from pain, blood, noise and vibration during hard tissue procedures, tissue removal, cavity preparation and related applications. It can remove carious tissue with speed and ease, painlessly.

This laser light delivering system automatically controls the acoustic, thermal, and optical energy applied to tissue. Centauri is pinpoint precise, removing only the material in question. The energy from Centauri's tiny, focused beam of light is rapidly absorbed by and vaporizes water at the surface of the target tooth. Its water spray creates an acousto-mechanical wave that impacts the tooth and removes the desired tissue.

It can shape and provide three dimensional etching, to prepare a cavity for adherence by composite resins.

Different handpieces are available for hard and soft tissue procedures, with integral air and/or water delivery.

ENDODONTIC SERIES-1

Treating a tooth with pulpal and periapical involvement and bringing it back to healthy, functional state provides immense satisfaction. Though an endodontist only can handle any type of case, a good number of endodontic cases can be managed very well by a general practitioner.

From this issue, we are giving a series of articles to provide better understanding of endodontic treatment. To manage endodontic emergencies and for a correct treatment plan, accurate diagnosis is very vital. The following is a histophysiologic classification of pulpal disease based on symptoms.

SYMPTOMATIC CLASSIFICATION OF PULPAL DISEASE

I. 1. Vital Asymptomatic
No adverse symptoms, response to testing normal.
2. Hyper sensitive dentin
There is pain response to stimulus application, which disappears on removal of stimulus.

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ORTHODONTICS - SOME USEFUL TIPS

Orthodontics is a very exiciting branch of dentistry and some GDP's do limited orthodontics (simple treatment) to get their share of this exciting branch.

Here we give some useful tips which will help you to achieve efficient tooth movement with minimum discomfort to the patient and avoid unnecessary frustration.

Do not be impatient :

Frequent activation can be very damaging and can even make the tooth non-vital. Once activated, wait for at least 3-4 weeks before doing the next activation. This allows the previous activation enough time to cause tooth movement.

Average rate of tooth movement :

It is about one mm. per month. It is faster in younger patients and in maxilla and slower in older patients and in mandible. These are general guide lines and there can be variations.

Periodontal Health : Is very important. If inflammation is present before applying the orthodontic force, it will lead to excessive tooth mobility. You must ensure that the perio health is optimum before commencing the treatment. Periodontal inflammation impairs the osteoblastic process, preventing proper formation of bone during tooth movement.

Force : Use light continuous force and carefully select the point of application. If the point of application is more gingival (e.g. Labial bow) tooth tends to move more in bodily fashion and the movement is slow and anchorage loss greater. Removable appliances are ideal for tipping movement. If complex tooth movements are needed better leave it to the specialist.

Watch for obstruction : It is very important to see that teeth/tooth which you are moving should not have any obstruction in the path of movement. These can be acrylic plate, occlusal interference, oral habits, supernumerary teeth or fibrous tissue.

Ensure the patient compliance : Make sure that the patient understands and uses appliance according to your instructions.

Equal and opposite reaction : Keep this Newton's third law of force in mind. Whenever a force is applied it will cause reaction of the anchor teeth eg. heavy force application even with a labial bow can cause mesial movement of molars.

* Happy tooth moving and If you have any more queries write to us and we shall cover them in future.

- Dr. Sumant Goel, M.D.S.

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3. Inflamed (reversible)
   Thermal or osmotic stimulus evokes response, which is eliminated by removal of irritant or placement of sedative dressing.

II. 1. Inflamed / degenerating without radiolucent periapical area (irreversible)
   — Stimuli evoke response, but there may be spontaneous pain.
   — The response can last from minutes to hours.
   — No radiographic changes.
   2. Inflamed/degenerating with radiolucent periapical area (irreversible)
   — There is demonstrable radiographic change.

III. 1. Necrotic without radiolucent periapical area.
   — Possibility of spontaneous moderate to severe pain.
   — No response to testing procedures.
   — Radiograph negative.
   2. Necrotic with radiolucent periapical area.
   — Periapical or lateral periodontal radiographic changes are evident.

Source - Internet.

NEW PRODUCTS

PANAVIA 21

Panavia 21 from J Morita is an all purpose resin cement, indicated for

— all indirect restorations
— cementing post and cores
— and amalgam bonding.

It combines etching, priming and bonding into one simple step, thus reducing the number of clinical steps. Custom extra oral working time and custom clean up time are other advantages. It is an excellent desensitizer. Other advantages are low film thickness, low solubility, easy handling properties.

Clearfil AP - X, restorative composite by J. Morita Inc. has excellent physical properties, handling characteristics and high polishability.

Both these products are available at

Tracom Services Private Limited.
M-1, Lajpat Nagar - III
New Delhi - 110 024.

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