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S u m m a r y

Iatrogenic Damage

The author shows the extent to which dental operations also bear responsibility for an increase in chronic disease.

To illustrate this, the damage caused by turbines used in dental practices is described in detail, including the long-term negative results involved.

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Iatrogenic Damage

Reports by the WHO on on the increase in chronic diseases are alarming!!

According to them, these diseases have increased threefold over recent years alone. Environmental and civilizational damage - such as stress, faulty diet, narcotics and alcohol etc. ALSO play a part in the figures given by these statistics.

However, even if stress, stimulants and habit-forming luxuries have increased, this is no sufficient explanation for the immense rise in the number of persons affected, especially as - incited both by the cheap press and more serious publications - many people are trying to keep fit through physical training and reasonable nourishment.

These efforts on the one hand and the increasing consumption in stimulants plus the accompanying stress on the other should - viewed statistically - balance each other out.

If, therefore, in spite of this such a horrendous increase in chronic diseases can be observed this means that WE - as physicians and dental specialists - are called to check whether our professional operations do not also contribute to the fact that the number of chronically affected persons is increasing to such a devastating extent through the provocation of focal conditions.

Every medical discipline has its inherent capacity to cause iatrogenic damage.

The dental field covers such a wide range that I am not at all able to report on all forms of iatrogenic damage.

I would like you to think merely of the sequels of erroneous articulations, neglected - or incorrectly performed - maxillary regulation, as well as badly fitted dentures/prostheses, fillings which are too high causing premature contact, fillings or pulp protection resulting in slow mortification of the pulp, or mouth voltages produced by using different metals or alloys etc.

All these forms of iatrogenic damage can result in severe negative effects on the general health of a patient.

I would like to encourage thought about forms of damage which have not been taken into sufficient consideration up to now, or have even - provided they are known - been deliberately ignored.

In the context of dental surgery, the primary and, indeed, principal consideration is here the dental turbine or rotor which - in my opinion and, also in the meantime, that of several university clinics - should be considered as a sort of time bomb: in its devastating effects, it has been completely underestimated by most of our colleagues.

The industry has propagated the ergonomic advantages of this high-speed drills, constantly developing and producing machines with higher speeds, greater strength and more functions; and without long-term clinical, histological or pathological monitoring of the effects of turbines in general, the entire dental profession - including universities - has adopted these diabolical machines.

How do turbines cause damage?

1. In the effects of grinding and drilling burs on the tooth enamel.

The turbine does not grind down in the manner of slower machines, but rather breaks up the enamel prisms by impact, not only on the edges of cavities and preparations but also far down into the enamel supposed to remain intact: this has been proved by samples recorded through electron microscope.

The cracks thus caused not only allow bacterial toxins but also the bacteria themselves and macromolecules to pass and penetrate into the dentine.

This encourages caries.

2. But the major damage is caused in and on the dentine itself.

Many colleagues are of the opinion that the pulp receives too much heat due to friction when turbines are used in treatment. Additional abundant cooling would avoid such a burden.

As, due to the high rotation speed, both a congestion and negative pressure occurs on the dentine, a dry (or waterless) zone is formed at the very point of drilling or grinding/milling.

In an edition of a German-language journal (the ZWR), SCHÖLER, a Swiss colleague described trials with air- and water-cooled turbines: to culminate, he discovering that, already after 5 - 20 seconds of milling or grinding with turbines, an increase in pulp temperature by 12 °C (about 22 °F) caused irreversible damage in 60 % of the pulps examined. These findings have found their confirmation in an almost identical study by HENNING and PRZTAK, who are also mentioned in the same article. This article, however, did not mention one kind of damage which is not produced thermically, but which equally spell doom to the pulp, i.e. damage from

n e g a t i v e p r e s s u r e .

As a result of the high rotation speed, turbulences are produced around the burs which produce a very high negative pressure over the dentinal tubules (according to my own most recent tests this amounts to as much as 10 mm water column per 100,000 revolutions). This negative pressure does not increase in linear, but in exponential fashion: as a result of this state, the peritubular dentine linings, the cylindrical odontoblastic processes, are damaged or sometimes torn out - even odontoblast cores can may be partially sucked into the tubules.

Professor RAVNIK of Ljubljana in Yugoslavia was already able to prove this many years ago. This means that the metabolic processes in the enamel and dentine regions are disrupted decisively.

By way of a reminder:

Approximately 5 million dentinal tubules per square centimeter*) are located in the crown area of the pulp. This number decreases down towards the root apex, although it still amounts to approx. 1.4 million at the cement limit. One single dentinal tubule has a diameter of 1.3 μ to 4.5 μ .

When the drilling or grinding bur is withdrawn - so that the negative pressure ceases - the empty and now open tubules can be filled in a retrograde manner by bacteria and grinding debris, as reported in English-language electron microscope studies. The denatured protein of the destroyed odontoblastic processes and cores can be broken down proteolytically by these bacteria.

*) Equivalent to 13 million per square inch.

Bacterial toxins, capsular antigens and proteolytically broken down protein matter from the dentinal tubules act as antigens and result in permanent, autoaggressive processes and finally in chronic irritation of the pulp. It thus becomes clear that these pulp tissues with their damaged odontoblasts then have no chance of survival. They then become the potential foci of tomorrow.

In answer to assertions by colleagues to the effect that they only grind the enamel with their turbines, I would like to reply that they are in no position to differentiate macroscopically whether they are still working in the enamel or already in the dentine. Even if the bur only contacts the dentine at one single point, the suction effect on the dentinal tubules has then already been produced, causing irreversible damage to the pulp.

A partial statistic for ground or milled teeth speaks for itself: the application of conventional methods of pulp testing on teeth treated with turbines in this way merely produced changed sensitivity values. Not until measuring with the electroacupuncture stimulation current test can the damage be established in an exact manner. Responses to cold or heat stimuli or to electric currents - i.e. via the usual clinical "vitality tests" - provide no evidence for the functionality of the pulp's resistance as an organ.

I have been able to provide supporting evidence with test results involving histological examinations on extracted teeth which had previously been "treated" with turbines.

If now - in the full light of this knowledge - we still consider how many colleagues apply their turbines day by day without hesitation on millions of patients, you are now able to understand why I used the term 'time bomb'! By means of this machinery we are sinning knowingly or

unknowingly to a punishable degree against the health of our respective peoples!!

At the present time, the results are unforeseeable.

Is it not possible to say that a connection already exists between the turbine era and the precipitous rise in chronic illness?

For about 20 years now, turbines have been in use for grinding at least in 99 % of all dental practices.

It is a known fact that a chronic disease requires a longer time to develop. If one considers that pulp tissues die at a relatively slow rate and do not always immediately constitute a secondary source to the patient, they must, however, finally result in a breakdown of the local defense mechanism: this fact must at least be given some consideration. In my opinion, the high-speed turbines as presently used in dental practices must be withdrawn from circulation at least in order to avoid damage of the kind described being inflicted in the future. Our physical / physiological and histological examinations have shown that the upper rotary speed limit is at 20,000.