Sokolova Olga
Scientific Advisor: Md, Prof. Avanesov Anatoly
Department of General Dentistry, Peoples' Friendship University of Russia, Moscow, Russia

DENTAL HYGIENIC MEASURES' ROLE AS A PART OF HAEMOTOLOGICAL PATIENTS' COMBINED TREATMENT

Abstract:

It has been proved that prophylaxis of dental diseases is one of the most effective measures providing to reduce prevalence level of basic dental diseases. The guiding preventive measure is known to be professional oral hygiene. Especially hygienic measures play an important role in haematological patients' treatment. That's connected with treatment peculiarities in this group of patients when chemotherapy leads to blood cells growth suppression and loss of mucous membrane its regenerative possibility. As a result a clinical course complicates with different inflammatory processes like gingivitis, periodontitis and stomatitis. Moreover, ulcero-necrotic processes may appear as a result of leukemic infiltration lysis, in massive haemmorrhages, in neurotrophical disorders and as a result of immuno-suppresion.

Methods: From 2009 to 2011 we were observing mouth cavity condition in patients with leucosis. Some patients had inpatient treatment in the Haematological Center of Russian Academy of Medical Sciences, others had out-patient treatment at clinical base of our Department. I was examining 22 patients of 25-63 years with acute and chronic leucosis at different stages of chemotherapy – before, during and after chemotherapy. We used index assessment to fix oral hygiene level in all patients. These indexes are Hygiene Index (HI) of Fedorov-Volodkina and OHI-S. Also PMA index was used.

Results: In a week index value was 1,7-2,0 (HI) and 0,9-1,4 (OHI-S) corresponding to satisfactory level. PMA index value was 46,5%. In a month index value was 0,8-1,0 (HI) and 0,4-0,65 (OHI-S) corresponding to good level. PMA index value was 14,3%. Moreover, improvement of the mucous membrane condition was noticed. Redness, swelling, gingival hemorrhage and itching reduced.

Conclusion: Thus, oral hygiene high level allows to prevent further complications in the mouth cavity that alleviates basic clinical course and has a positive effect on patients' common state.

Key words: professional oral hygiene, periodontal diseases, haematological patients.

1.Introduction:

It has been proved that prophylaxis of dental diseases is one of the most effective measures providing to reduce prevalence level of basic dental diseases. The guiding preventive measure is known to be professional oral hygiene.

The first information about using professional oral hygiene as a part of oral diseases preventive complex appeared in 1970 in Sweden model of outreach program. In Russia such specialty as "Preventive dentistry" was enacted in 06.02.2011[1].

Mouth cavity is a combined system in which external factors (biological, personal, social) cooperate with internal ones (periodont, dentine metabolites, bacterial colony, immune system of the mouth cavity mucous membrane, oral epithelium, saliva, nerve endings, blood vessels)[2]. Components of that system are as pathogens as permanent microorganisms including bacteria, fungi, spirochete, protozoa, virus.

Mixed saliva consists of from 4mln. to 5mlrd. microorganisms, dental plaque consists of from 10 to 1000mlrd. per 1 gram of solid. Concentration ratio of aerobe and elective pathogenic bacteria in 1ml saliva is 10^7, concentration ratio of anaerobe is 10^8. 75% of all the bacterial flora of the mouth cavity is anaerobe. It's considered that normal ratio of anaerobe and aerobe in oral cavity is 10:1.

According to a modern learning curve about etiology and pathogenesis of inflammatory periodontal diseases parodontopathogenic flora is dominating causative agent. There are 2 main theories estimating connection between inflammatory periodontal diseases and nature of dental plaque microbe content in a different way[3,4].

The first theory of nonspecific microbe content was suggested by W.Löesche in 1976. According to it periodontal condition depends on "quantity of disturbing agents produced by bacteria" that is periodontal condition depends of oral hygiene level.

The second theory of specific microbe content consists that only specified plaque is pathogenic and its pathogenicity's connected with specified microorganisms.

It is known that P.gingivalis, Aggregatibacter actinomycetecomitans, P.intermedia, T.forsythensis, E.corrodens, F.nucleatum prevail in areas of the most periodontal tissue destruction. However, nowadays we don't have authentic facts proving connection between inflammatory periodontal process appearance and specified microorganisms persistation.

Thus, microflora of periodontal pocket is considered to be predetermined

factor of inflammatory diseases appearance which acts in a condition of immune response and in specific external environment condition.

Parodontopathogenic flora has a direct toxic effect bringing on inflammation and destruction in periodontal tissues and has mediated effect bringing on an immunopathogenic response[4,5,6]. These processes progress due to microorganisms excreting active materials, they are endotoxin, enzyme, cellular toxin. When endotoxin secreting factor inhibiting fibroblast forming secrets. As a result, all the reparative processes in periodontal tissues are being suppressed. Enzymes acting with tissue protease and protease from accumulated leukocytes may bring on massive periodontal tissues destruction. Moreover, IgA and IgG secretion become suppressed. It results in decline of mouth cavity mucous membrane barrier function[7].

Thus, the key component in inflammatory periodontal diseases treatment is pathogenic flora liquidation with use of professional oral hygiene.

Especially hygienic measures play an important role in haematological patients' treatment. That's connected with treatment peculiarities in this group of patients when chemotherapy leads to blood cells growth suppression and loss of mucous membrane its regenerative possibility. As a result a clinical course complicates with different inflammatory processes like gingivitis, periodontitis and stomatitis. Moreover, ulcero-necrotic processes may appear as a result of leukemic infiltration lysis, in massive haemmorrhages, in neurotrophical disorders and as a result of immuno-suppresion.

Thus, while examination and treatment of this group of patients must be non-invasive and atraumatic.

Patients and Methods

Our observation is aimed to special oral hygiene program design that allows to prolong haematological patients' life. From 2009 to 2011 we were observing mouth cavity condition in patients with leucosis. Some patients had inpatient treatment in the Haematological Center of Russian Academy of Medical Sciences, others had out-patient treatment at clinical base of our Department. I was examining 22 patients of 25-63 years with acute and chronic leucosis at different stages of chemotherapy – before, during and after chemotherapy. We used index assessment to fix oral hygiene level in all patients. These indexes are Hygiene Index (HI) of Fedorov-Volodkina and OHI-S. Also PMA index was used. An average index value was 2,2-2,5 (HI) and 1,9-2,4 (OHI-S) corresponding to unsatisfactory oral hygiene level. PMA index value was 50,2%. After primary inspection we used the following scheme:

-oral hygiene skills training;
-adjustment of personal hygiene equipment;
-patient motivation to oral hygiene;
-professional oral hygiene;
-controlled teeth cleaning (at the 2-nd visit).

All the patients were suggested to use Lacalut Aktiv complex including toothpaste, toothbrush and mouthwash.

Results

In a week index value was 1,7-2,0 (HI) and 0,9-1,4 (OHI-S) corresponding to satisfactory level. PMA index value was 46,5%. In a month index value was 0,8-1,0 (HI) and 0,4-0,65 (OHI-S) corresponding to good level. PMA index value was 14,3%. Moreover, improvement of the mucous membrane condition was noticed. Redness, swelling, gingival hemorrhage and itching reduced.

Table 1. Oral hygiene indexes evolution

Days	**0**	**7**	**14**	**21**	**28**
Visits	**1**	**2**	**3**	**4**	**5**
HI	2,2 – 2,5	1,7 – 2,0	1,4 – 1,7	0,9 – 1,3	0,8 – 1,0
Hygiene level	Unsatisf.	Satisf.	Satisf.	Good	Good
OHI-S	1,9 – 2,4	1,5 – 2,0	1,0 – 1,4	0,9 – 1,2	0,4 – 0,65
Hygiene level	Unsatisf.	Unsatisf.	Satisf.	Satisf.	Good

Table 2. PMA index evolution

Days	0	7	14	21	28
Visits	1	2	3	4	5
PMA value (%)	50,2	46,5	33,2	21,6	14,3

Table 3. Evolution of periodontal tissues inflammatory process

Days / Complaints	0	7	14	21	28
Bad breath	++++	++	-	-	-
Swelling	++++	+++	++	+	+
Hemorrhage	++++	++	+	+	+
Itching	++++	+++	++	+	+

Conclusion

Thus, such complex of hygienic measures has high hygienic properties, marked parodontoprotective effect which are seen in redness, swelling, gingival hemorrhage and itching reducing. So, oral hygiene high level allows to prevent further complications in the mouth cavity that alleviates basic clinical course and has a positive effect on patients' common state.

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