DOCTORATE THESIS
- Abstract -

PARODONTAL EVENTS IN PATIENTS WITH CHRONIC KIDNEY FAILURE DISEASE

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MOTIVATION RESEARCH TOPIC

Oral health is integral to overall health and cannot be separated from the entire general. Interrelation between oral health and overall health is in both directions.

Impact conditions and systemic diseases on oral health is recognized. In this regard, conditions commonly affecting various organs of the body may influence the periodontium.

Pathologies with impaired renal evolving themselves determined by features of tissue reactions manifested by delayed healing, and greater susceptibility to infections that endanger the patient's life.

The picture becomes more complex when it consider the amount of endocrine metabolic disorders associated kidney failure, and they in turn causes a variety of changes in the periodontal tissues.

Periodontal diseases, by their infectious nature, are a major risk factor for renal patient.

Along with periodontal pathology *per se*, the specific systemic drug therapy of periodontal disease including administration of substances such as: acyclovir, acetaminophen, antibiotics from the group of amino glycosides, tetracycline and sulfonamides, greatly increase the risk of the patient with chronic renal pathology.

Chronic kidney disease and periodontitis can have mutual significant effects.

Chronic kidney disease and renal replacement therapy can affect oral tissues and can significantly influence of the dental management of a patient with kidney disease, while recent studies suggest that chronic periodontitis in adults may contribute to overall systemic inflammatory level and therefore may have consequences in the management of patients with renal failure (CRF) or a patient with hemodialysis (HD) in the maintenance treatment.

A large number of epidemiological evidence proofs that influence systemic chronic inflammatory periodontal disease contribute to endothelial damages and atherosclerosis, probably mediated by acute phase.

Other studies have shown that chronic inflammation contributes to progressive atherosclerosis in patients with end stage renal disease (IRCF) hemodialysis.

Available evidences suggest that pro-inflammatory cytokines and acute phase response plays a central role in the genesis of both, malnutrition and heart complications at patients with IRC.

Suggestive evidences also suggest that periodontal disease may provide a hidden source of systemic inflammation at these patients and may, in fact, predict the further development of existing IRC and the development of diabetic nephropathy.
Therefore, the data presented in the literature for study confirm that wish to initiate suggest that in patients with renal disease there is a higher prevalence and severity of periodontal disease compared to systemically healthy patients.

**CAP.1**

**DIAGNOSTIC AND PROGNOSTIC SIGNIFICANCE OF A SYSTEMIC PROFILE IN RENAL DISEASE**

**Chronic kidney disease** (BCR) is a complex pathophysiologic process, with a multiple etiology, that results in *irreversible* alterations of nephron’s structure and function, often leading to terminal chronic kidney disease (BCRT, *end-stage renal disease*), in which long-term survival is not possible without substitution of chronic renal excretory function (dialysis or renal transplant).

The term somewhat synonymous, but not overlapping, of **chronic renal failure** (IRC) was defined as a progressive decrease in glomerular filtration rate (RFG) <60 ml/min/1.73 m² body surface area [40].

In last year’s, the term "chronic renal failure" tends to be replaced by that of "chronic kidney disease", a more appropriate term to describe chronic kidney dysfunction [21].

**Chronic kidney disease** was defined by a group of experts convened by the U.S. National Kidney Foundation [12, 35].

Meanwhile, this classification has met international nephrology community agreement, of other specialties (cardiologists, diabetologists), and also of the factors responsible for health policies in developed countries as well as Romania.

Renal patient requires thorough anamnesis and a careful physical examination, including all appliances and systems.

Clinical manifestations of kidney disease are polymorphic, highlighting the many events at the various organs and systems.

Frequently, a symptom of “impairment” is typically absent or nonspecific stark, representing a challenge to the clinician towards a complete and correct diagnosis of renal disease.

**CAP. 2**

**THE RENAL DISEASE’S IMPACT ON ORAL HEALTH**

Chronic kidney disease (BRC) or chronic renal failure (IRC) by the new classifications, a progressive and irreversible decline in kidney function, kidney disease is the disease with the most implications in dentistry [39].

Since the process is developed and decreases the number of functional units of the kidney or nephron, glomerular filtration rate (GFR) decreases, whereas the serum levels of urea increases until it approaches the stage of renal failure if the patient is not treated.

Signs and symptoms at patients with renal failure are known as "uremic syndrome".
Oral mucosa can be affected by many systemic diseases, such as chronic renal failure (IRC).

Are affected: the oral mucosa, the teeth, the salivary glands and the jaw bones.

More than 90% of patients with renal impairment show signs and oral symptoms, of hard and soft tissues, some of them are a cause of the disease itself, and others arising from the treatment of pathologies [16].

The most important characteristics of these patients are bleeding tendency, hypertension, anemia, drug intolerance, increased susceptibility to infection and the presence of several events associated with the disease or its treatment either [23].

CAP.3

PRIODONTAL THERAPY FEATURES AT PATIENTS WITH RENAL DYSFUNCTIONS

Patients with renal impairment require special considerations regarding dental treatment, not only because of conditions inherent in its multiple manifestations of the disease and oral too, but also because of side effects and characteristics of treatment they receive.

Chronic kidney disease (BRC), a progressive and irreversible decline of kidney function, is the disease with the most implications for dentistry.

Kidneys have the following functions: filtering metabolic waste and the preservation of the composition of electrolyte and extracellular fluid volume regulation of acid base balance and endocrine function (the synthesis of prostaglandins, erythropoietin, rennin, vitamin D, - involved in bone metabolism, etc.) [8].

Protocols have not been established precise dental management of patients with chronic kidney disease or who are terminally ill or for renal transplant recipients but only certain criteria such as prophylactic.

Oral infections, including periodontal disease may be a risk factor for renal patient who requires amount appropriate measures to eliminate or reduce this risk [45].

90% of patients with chronic kidney disease on dialysis show oral signs and symptoms such as bleeding tendency, higher susceptibility to infections and gingival overgrowth caused by cyclosporine.

With regard to dental considerations and management strategies for these patients should take into account that the medication dose adjustment should be made with creatinine clearance; before invasive dental procedures, a blood test must be requested (including hemostasis and blood recount). Risk assessment of oral/dental and medical history involves a detailed intraoral/extra oral soft tissue and radiographic examination and consultation with nephrologists’ or other professionals (e.g., endocrinologist).
An overall assessment of risk thus facilitates treatment plan.

CHAPTER 4
STUDY ON EVOLUTION OF ODONTO-PERIODONTAL PARAMETERS AT PEOPLE WITH KIDNEY DISEASES
4.1 COMPARATIVE STUDY ON EVOLUTION OF ODONTO-PERIODONTAL PARAMETERS AT PATIENTS WITH AND WITHOUT RENAL DISEASES

4.1.1 Introduction

Abbreviations:
• Dialysis (hemodialysis) (HD)
• Chronic renal failure (IRC) = chronic kidney disease (BRC)
• End-stage of renal disease (SFBR)
• Peritoneal dialysis (PD)

Chronic renal failure (IRC) is a progressive and irreversible loss a function and number of nephrons, which leads to a decrease in glomerular filtration rate.

The mechanisms of progression to the final stage of kidney disease may involve glomerular hyper filtration, high blood pressure with induction of cytokines (especially angiotensin II and transforming growth factor - β), proteinuria or renal ischemia. People in the last stage of renal disease requiring renal replacement therapy function by: hemohemodializă, peritoneal dialysis or transplant. The statistics show that half of these patients die from cardiovascular diseases and a quarter from infectious diseases consecutive.

The main function of the kidneys is to remove metabolic waste, electrolytes and water. When this function is affected 5-10 % of its original capacity, end-stage renal disease SFBR can quickly lead to death, unless if the renal replacement therapy was started.

Hemodialysis treatment causes systemic changes, oral complications and changes in the composition of saliva and output [27]. In addition, vomiting and reduced oral cares (self) could also negatively affect oral health at patients on chronic hemodialysis resulting in more cavities, periodontitis and oral lesions [47]. However, there are conflicting data on the effect of chronic hemodialysis therapy on oral health [99, 170, and 191]. In a study of 53 patients on hemodialysis has been reported that the number of decayed teeth missing and restricted (DMFT) and the periodontal attachment does not differ from the control group [13].

To increase salivary electrolyte is likely to cause the formation of tartar, but contrary, it contributes to the remineralization of dental enamel, leading to a smaller number of cavities to children [25]. Contrary, another study reported that the prevalence of periodontitis and caries were higher in dialysis patients, but this study lacked by a control group [19].
4.1.2 The reason for choosing this topic

In the literature there are few data on the oral health status of patients on hemodialysis, and most of these studies report an increased number of dental and periodontal diseases.

In 1998 it is reported that 100 % of patients on hemodialysis taken on study present the various forms of periodontal disease, especially severe gingivitis and mean periodontitis with a high score of oral hygiene [19].

These authors recommended for patients with hemodialysis, professional oral care and instruction on oral hygiene measures and other researchers recommend treatment depending on the configuration active oral plaque, periodontal disease may become the outbreaks of active infection [14].

At patients non and with hemodialysis were recorded various alterations in renal dysfunction due periodontal tissues and their association with infection as plaque given by way of diagnostic and therapeutic management of these cases was the purpose of my clinically study.

4.1.3 Purpose of the study

At those patients, we aimed to identify changes to the context of kidney, occurring at the level of periodontium, and how they influence the evolution of existing periodontal pathologies.

4.1.4 Material and Method

4.1.4.1 The group of patients

After selecting the age and educational level of the control group we selected 88 patients without renal disease periodontal disease (36 men and 52 women; mean age 41.3 ± 8.4 years), and test group of patients with IRC and periodontal disease included 42 patients (30 men and 12 women, mean age 42.6 ± 9.2 years).

This study was conducted within ambulatory Emergency Hospital "St. Andrew” Galati dentistry service and oral and maxillofacial surgery, under coordinating of the chef project DR. SINCAR DORINA CERASELLA, MD General Dentistry, and the hospital Department of Nephrology. The subjects on the control group were chosen throughout the hospital triage, corresponding to the age of the study group. All patients, including those from the control group were evaluated by one nephrologists’ physician and one dentist for avoidance of errors related to investigation. Age, gender and education level were assessed with a questionnaire and clinical data were retrieved from patient records.

4.1.4.2 Assessment of oral health parameters

Evaluation of the oral health of patients undergoing hemodialysis occurred in hospitals for intractable patients and also in the dentistry of CMI from Galați.
The most common respiratory diseases are caries and oral chronic marginal periodontitis, affecting the teeth and periodontium. For a better presentation of them, the theme was broad one specificities have studied each one.

The knowledge of the defining elements of each part helps to diagnose diseases and their treatment.

4.1.4.3 The statistical

As the amount of data collected was great, quick data processing was necessary the use of computers with powerful configuration: Pentium IV HT 3 GHz, 1 GB RAM, and 160 GB.

From the IT perspective, the study performs a series of distinct stages as logistics and timeline:

4.1.5 Results

Since the purpose of this study is to establish direct correlation between renal disease, various medicines in the treatment and oral changes, which involves removing as many variables that can affect the results, it started the composition of the two groups - one control group (patients without kidney disease) and a study group with the highly similar in terms of the age.

After selecting the age and educational level of the control group we selected 88 patients without renal disease affected by periodontal disease (36 men and 52 women, mean age 41.3 ± 8.4 years), and the test group of patients with IRC and periodontal disease which included 42 patients (30 men and 12 women, mean age 42.6 ± 9.2 years).

Of the patients with renal impairment, the largest share presented by men numbered 36, or 51% of the study group.

In terms of oral assessment it noticed that both patients with IRC and also the control group had the same amount of area covered with plaque (2.4 ± 1.6 vs. 2.6 ± 1.4 respectively).

Patients with IRC had significantly more teeth with calculus (4.1 ± 2.6) than those in the control group (3.0 ± 2.9, \( P < 0.05 \)).

Percentage of supra and sub gingival plaque was slightly higher in patients with IRC (34.4%) than those in the control group (24.6%).

A statistically significant association was found between the number of teeth covered with plaque and tartar and the number of elements in bleeding on probing (\( r = 0.543, P < 0.001 \) and \( r = 0.568, P < 0.001 \), respectively).

Evaluation of the oral health of the group of patients with kidney gave the following types of diseases: dental caries, gum disease, temporomandibular disorders, ulcers, difficulty in chewing and fluid intake, edentulous, mobile teeth, fractures, dental malpositions, halitosis, infractuoase occlusal edges, malodor, discoloration of teeth and pain.
After control of the patients with renal disease, were obtained following levels for each condition separately: carious lesions - 41% gum disease - 36% of temporomandibular disorders - 17%, ulceration - 21%, difficulty in chewing and fluid intake - 10%, edentulous, mobile teeth, fractures - 17% dental malpositions - 7%, halen - 24%, infractuoase occlusal edges - 24%, malodor - 31%, discoloration of teeth - 21% and pain - 14%.

Because a patient may have one or more pathologies, in Figure 4.2 was presented the percentage distribution by type of singular affection, and not cumulative pathology of patients with kidney disease.

The following values were obtained for the conditions presented by patients with kidney disease: dental caries - 16%, gum disease - 14%, temporomandibular disorders - 6%, ulceration - 8%, difficulty in mastication and ingestion of fluids - 4%, edentulous, mobile teeth, fractures - 6%, dental malpositions - 3%, halen - 9%, infractuoase occlusal edges - 9%, malodor - 12%, discoloration of teeth - 8% and pain - 5%.

Evaluation of the oral health of the group of patients without kidney gave the following types of diseases: dental caries, gum disease, temporomandibular disorders, ulcers, difficulty in chewing and fluid intake, edentulous, mobile teeth, fractures, dental malpositions, halitosis, infractuoase occlusal edges, malodor, discoloration of teeth and pain.

From control of the patients without renal disease, we obtained the following percentage values for each condition separately: carious lesions - 25%, gum disease - 28%, temporomandibular disorders - 6%, ulceration - 12%, difficulty in chewing and fluid intake - 21%, edentulous, mobile teeth, fractures - 21%, dental malpositions - 11%, halen - 12%, infractuoase occlusal edges - 14%, malodor - 7%, discoloration of teeth - 26% and pain - 15%.

Due to the fact that a patient may have one or more diseases in Figure 4.3 was presented the percentage distribution over the type of singular affection, and not cumulative pathology of patients with kidney disease.

The following values were obtained for the conditions presented by patients with kidney disease: dental caries - 13%, gum disease - 14%, temporomandibular disorders - 3%, ulceration - 6%, difficulty in mastication and ingestion of fluids - 11%, edentulous, edentulous, mobile teeth, fractures - 11%, dental malpositions - 5%, halen - 6%, occlusal edges infractuoase - 7%, malodor - 3%, discoloration of teeth - 13% and pain - 8%.

As can be seen the percentage distribution by type of single pathology, 15% have problems temporomandibulare, the largest share presenting it carious lesions (36%), followed by gum disease (31%) and ulceration 18%.
We notice that the evaluation group of patients without kidney disease, the percentage distribution by type of single pathology, the proportion of gum disease is 39%, followed by an imperceptible difference of 35% of carious lesions.

Ulcers are in a ratio of 17% and temporomandibular disorders accounted for 9%.

From the group of 42 patients detected with chronic renal failure IRC hemodialysis, the percentage distribution by type of pathology singular group of conditions shown in Figure 4.6, have experienced the following problems: problems in chewing and swallowing 17%, edentulous, and mobile teeth fractures 29%, 12% and halitosis dental malpositions 42%.

As can be seen from percentage distribution by type of single pathology, 19% have halitosis, the largest share presenting it in mastication and swallowing disorders and the edentations, mobile and fractured teeth in a percentage equal of 32% and the dental malpositions 17%.

From the total cases, only 22.09% had symptoms related to accuse periodontal, the highest share presenting the generalized bacterial gingivitis (63 cases - 57, 78%), followed by superficial chronic marginal periodontitis, which evolve in the context of local factors inflammation (21.39%), and aggressive forms of periodontal disease (aggressive periodontitis) in a proportion of 7.83% (7 cases) than the literature provided this percentage is 1%.

From the group of 88 patients without chronic renal failure IRC detected, the percentage distribution by type of singular pathology, for the group of disorders presented in chart 4.14, have presented the following pathologies: 47% caries and 53% gum diseases.

From the group of 42 patients with chronic renal failure IRC detected, the percentage distribution by type of singular pathology, the group of pathologies presented in chart 4.15, have experienced the following problems: problems in chewing and swallowing 37%, and edentulous, mobile or fractured teeth 63%.

From total of 88 patients with chronic renal failure IRC detected, from the percentage distribution by type of singular pathology, the share was equal for both chewing and swallowing disorders and also for edentulous, mobile or fractured teeth.

Seven percent had one or more maxillary and/or mandible prosthetic works. The proportion of patients with IRC who have partial denture was comparable to the control group (data not shown).

Periodontal pocket depth did not differ between patients with IRC and those from the control group.

The proportion of teeth with immediately bleeding after probing at patients with IRC was higher (21.2%) than in the control group (8.2%) and were observed statistically significant differences.
Most patients with IRC (97.6%), in which the brushing is carried out daily (once a day 28.6%, 64.3% twice a day, 19.0% over two times a day), have presented oral hygiene indices which not differ from those of the control groups (96.6% daily brushing).

Last year, 81% of patients with IRC (n = 34) have received professional oral care at least once, which is comparable to the reference group.

4.1.6 Discussions

In this study, was evaluated and compared the oral health status of 42 patients with IRC and of 88 healthy patients.

DMFT and DMFS scores tend to be higher in the control group than in the group of patients, but the difference was not statistically significant. These observations are consistent with previous studies [1, 10].

Some researchers have not found statistically significant difference between the number of cavities, tooth absent and shutter teeth (CAO), at 105 patients with renal failure on hemodialysis treatment (CAO = 14.9 ± 8.7) compared with 53 types according to the control group (13.3 ± 7.9). [19]

It has been suggested by other authors that the cavities at hemodialysis patients is lower, that of the urea concentration in saliva leads to higher levels of pH [3].

High levels of salivary urea may protect teeth from demineralization, but on the contrary increases plaque formation at patients undergoing hemodialysis [23].

Higher prevalence of plaque found, suggesting that the patients with IRC have poor oral care.

It might be possible the effect of a relatively short period of hemodialysis treatment (28.6 ± 16.9 months), which can not reflect on the DMFT index, which is a lifetime experience during dental career.

Our results could potentially be biased because only relatively healthy patients with IRC could participate in this study.

We have found that the number of teeth with dental plaque was significantly higher at the patients than on those of the control groups.

This is in accordance with the study which found a significantly higher index calculation in hemodialysis patients compared with those of control groups [29].

However, unlike their study, we did not find any differences between patients with IRC and them of control groups about the amount of dental plaque.

As in our study the frequency of dental hygiene procedures and the plaque levels were comparable in both groups, possibly with other factors such as changes in saliva that may have contributed to higher scaling.

It was found a strong correlation between the number of teeth with bleedings and the number of teeth covered with plaque and tartar.

This is in agreement with previous studies on healthy individuals [35, 209].
An improvement in oral hygiene could reduce the amount of dental plaque and calculus, resulting in a reduction in the number of elements with bleeding.

This observation also indicates that the increased bleeding on probing not directly reflect the level of inflammation (gingivitis or periodontal disease) in patients with IRC [17].

4.1.7 Conclusions
1. Our conclusions suggest that periodontal disease is more severe on patients with BRC and it induce a systemic inflammatory response.
2. Considering that chronic inflammation is a risk factor for atherosclerotic cardiovascular disease in patients with hypertension and diabetes, the main causes of BRC is plausible that periodontal disease diagnosis, immediately followed by therapy should be an important preventive measure on the BRC in daily clinical practice.

4.2 COMPARATIVE STUDY ON EVOLUTION PARAMETERS ODONTO –PERIODONAL AT THE PATIENTS WITH KIDNEY DESASE BY TYPE OF TRATEMENT – HEMODIALYSIS

4.2.1 Introduction. The purpose of the study
Chronic renal failure is a progressive disease, characterized by the destruction of the functional units of the kidney, nephrons.

Etiologic factors of this process are diabetes, pyelonephritis, glomerulonephritis, nefrosclerozis, polycystic kidney diseases and collagen vascular diseases.

Loss of renal function occurs with the accumulation of metabolic wastes and with the changes in the normal hemostatic mechanisms of control like the balance of water and electrolyte balance.

In order to extend the life, hemodialysis is chosen treatment for artificial way of removing nitrogen products and other metabolism toxic substances from blood. However, any improvements in dialysis techniques are in fact only temporary forms of treatment to kidney transplantation, which is the ideal treatment for chronic renal failure.

This study was designed to evaluate the periodontal clinical status of patients with chronic renal failure treated or not by hemodialysis, considering this therapeutic procedure an aggravating or contributing factor that could lead to greater development of pathological periodontal disease.

4.2.2 Materials and methods
This study was conducted on two groups:
• Patients with chronic renal failure receiving hemodialysis - test group (D) - 47 patients and
• Patients not receiving hemodialysis - control group (C) - 36 patients (20 men and 16 women).
In order to determine the effect of duration of hemodialysis on clinical periodontal status, group D was divided into three subgroups described by Naugle et al. 8: 1) those who have been on kidney dialysis for less than a year, 2) those who had been on renal dialysis for 1 to 3 years and 3) in the renal dialysis for more than 3 years.

None of the patients had received periodontal treatment or antibiotic for at least six months.

Written informed consent was obtained from all participants.

Below is significant clinical aspects of the patients in the study.

During the study, there were:

- Attachment loss was measured with a periodontal probe of point diameter of 0.6 mm and graduated at 1, 2, 3, 4, 5, 6, 7, 9 and 11 mm.
- Periodontal pocket was assigned if less gingival recession attachment loss equivalent to 3 mm or more.
- It has made efforts to standardize the measurement effect during the study.
- Intraexaminatory reproduction of each index was tested based on and repeated during the study.

Clinical evaluation of periodontal tissues includes measurements and scoring indices variations on all surfaces except the third molar teeth.

Always record the situation periodontal:

- Gingival index (GI) and
- Attachment loss and make other
- Records exogenous local factors (PII, CI).
- For each examination data were updated in a computer and database.

Parameters analyzed for this purpose for the report included

- The plaque indices (PI) [263]
- Gingival index GI [160] and
- Loss of attachment (ILA) [102].

No preventive or therapeutic measure was not taken during the examination.

Statistical Analysis

Student's t-test was used to analyze the difference between the means of the two groups in terms of clinical parameters. One way analysis of variance (ANOVA) was used to determine differences between clinical parameters between subgroups. All analyzes were made at the 0.05 level of significance.
4.2.3 Results

The study aimed at conducting clinical investigations on patients with chronic kidney disease. The peculiarity lies in the analysis results by the values obtained during dialysis treatment.

It can say that there was a tendency for all clinical parameters to increase with duration of hemodialysis, but without reaching a significant level.

However, this trend could indicate a pressure inverse relationship between duration of chronic renal failure, which is a chronic deterioration, and the quality of personal oral hygiene.

Table IV.1 Data on age, GI, PI and PD for hemodialysis and control groups (mean ± SD)

<table>
<thead>
<tr>
<th>The group</th>
<th>n</th>
<th>Age</th>
<th>PI</th>
<th>GI</th>
<th>PD (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemodialysis</td>
<td>47</td>
<td>50,4±14,2</td>
<td>2,2±0,6</td>
<td>1,5±0,3</td>
<td>1,8±0,6</td>
</tr>
<tr>
<td>Control</td>
<td>36</td>
<td>50,2±12,4</td>
<td>1,9±0,6</td>
<td>1,4±0,5</td>
<td>1,8±0,6</td>
</tr>
</tbody>
</table>

From the group of 83 patients, 47 present the hemohemodialysis and 36 are on the control group. It can be seen that for both age groups studied is close to 50 years.

The values of the parameters studied, namely: plaque indexes, gingival index and attachment loss, present the almost similar values. If PI case they present the biggest difference respectively on hemodialysis group 2.2 ± 0.6 and 1.9 ± 0.6 for the control group.

Table IV.2 Data on age, GI, PI and PD scores in subgroups based on the duration of hemodialysis (mean ± SD)

<table>
<thead>
<tr>
<th>The group</th>
<th>n</th>
<th>Age</th>
<th>PI</th>
<th>GI</th>
<th>PD (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>11</td>
<td>44,8±14,6</td>
<td>2,11±0,7</td>
<td>1,49±0,4</td>
<td>1,59±0,7</td>
</tr>
<tr>
<td>Between 1 to 3 years</td>
<td>13</td>
<td>58,5±13,5</td>
<td>2,13±0,5</td>
<td>1,59±0,3</td>
<td>1,86±0,5</td>
</tr>
<tr>
<td>Much more than 3 years</td>
<td>12</td>
<td>46,6±11,1</td>
<td>2,14±0,6</td>
<td>1,62±0,3</td>
<td>1,97±0,5</td>
</tr>
</tbody>
</table>

In Table IV.2. hemodialysis group is divided by hemodialysis during.

Thus it appears that there are 11 patients for less than 1 year of hemodialysis, 13 patients for a period between 1 and 3 years, and 12 patients for more than 3 years. For the three groups, it’s presented the age, which is lower on group with less than 1 year of hemodialysis and greater on the group performing hemodialysis between 1 to 3 years.
It can be seen that the highest values are those without plaque for all patient groups studied. Also, the lowest value of tartar is presented on patients who have not dialysis.

It can be seen that the age ranges of 50-59 years or 60-69 years gingival bleeding values are much higher than in other age groups. Also, patients with dialysis values are significantly higher than those that were not on dialysis.

From observations on the graph we can draw the following conclusions: gingival index values for the 5 intervals are higher for patients on dialysis. Only on G0, the group of patients without dialysis presents the value greater than the value of patients who make dialysis. The higher percentage values are in the range G3 with values between 30 and 40%.

4.2.4 Discussions

Like any other systemic conditions, chronic renal failure (IRC) can cause oral manifestations. Patients with IRC may present unique signs multi-systemic disease that affects the kidneys (such as vasculitis or diabetes) or frequent oral pathology found in the increased prevalence of oral diseases in patients with IRC. The prevalence of oral lesions is affected by systemic illness which accompanies them.

Therefore, patients receiving hemodialysis although have some degree of immunosupresie they still can get a similar response to existing plaque that of their counterparts systemically healthy, on the periodontal agents pathogens. Therefore, chronic renal failure appears to be additional risk factor for severe periodontitis damage.

Therefore, it can be suggested that, instead of the side-effects of hemohemodialysis therapy, the primary cause of periodontal disease is seen at patients on hemodialysis, is the amount of the plaque.

This means that, in order to make the rejection of the graft is caused by infection, periodontal treatment should be carried out before the kidney transplant. We should always remember that treating periodontal disease will be more difficult to achieve after renal transplantation because of the opposite effect of immunosuppressive treatment.

However, gingival inflammation in patients on hemodialysis group was significantly higher than that in the group of patients without hemodialysis. This finding suggests that higher levels of plaque and bleeding index of hemodialysis group, it may be the result of administered anti-coagulants.

On the other side, in the group without dialysis GI values were comparable with those found in the group with hemodialysis. This suggests that the uremic state on patients at hemodialysis can suppress inflammatory reactions in the tissues, which leads to the detection of rare gingival inflammation on those patients than in the control group of patients without dialysis. Contrary to the results found by us, an experimental study of gingivitis on a group of hemodialysis patients and a control
group of healthy patients not showed any differences in the development of gingivitis, indicating that uremia not delay gingival inflammation on patients at hemodialysis [14]. Therefore gingivitis progress in the same way as in the healthy control group would develop only because of insufficient oral hygiene.

In the present study despite the large accumulation of plaque in the hemodialysis group, it found GI values comparable to those of patients in the group without hemodialysis. This finding suggests that the high levels of urea, in the hemodialysis caused the higher values of G [28, 39]. However there is no study available on GI values only for the group of patients with hemodialysis, so it was not possible to compare the present findings. A strong correlation was found between the number of teeth with bleeding and the number of teeth covered with plaque and tartar.

It is necessary therefore a stricter monitoring of those patients in order to prevent periodontal disease.

4.2.5 Conclusions
1. Findings showed that dialysis patients are more susceptible to periodontal disease than patients without this treatment. Therefore, it is very important that they be maintained at an optimum level of oral hygiene.

2. Uremia is responsible for increased gingival inflammation observed on those patients and increasing duration of dialysis treatment is associated with increased risk of gingival inflammation and periodontitis.

3. Were found to increase the level of plaque, tartar and gum inflammation and an increased incidence and severity of periodontitis on the group of patients on hemodialysis.

4. However, given the high mortality rate from complications of atherosclerotic strong association between increased inflammatory burden and atherosclerotic complications and possible contribution to systemic inflammation periodontitis, requires careful monitoring of periodontal status in all patients with chronic kidney disease.

CHAPTER 5
EVALUATION OF RENAL BIOCHEMICAL MARKERS AND THEIR ROLE IN PERIODONTAL DISEASE

5.1 Introduction – The purpose of the study
According to numerous reports of OMS incidence of kidney disease in the adult population is increasing worldwide.

Therapy, including hemodialysis, peritoneal dialysis or renal transplantation will therefore include a broad segment of the population of patients with dental problems. Renal transplant therapy can affect periodontal tissues, including gingival hyperplasia occurrence in patients with renal transplant immune suppression will grow at increasing oral pleasure, tartar and gum inflammation.
There is also a possible increase in the prevalence and severity of destructive periodontal disease in dialysis patients in maintenance therapy. Also, the presence of undiagnosed periodontitis may have significant effects on the medical management of patients with IRC.

In addition, chronic kidney disease and periodontitis can have significant effects, reciprocal. Chronic kidney disease and renal replacement therapy can affect oral tissues and can significantly influence the dental management of the kidney patient.

Evaluation and periodontal treatment of patients with chronic kidney disease requiring complex assessment of diagnostic concepts, associated pathologies, disease severity, complications and the risk factors.

5.2 Materials and methods
5.2.1 Selection of patients

This study was conducted within Ambulatory Emergency Hospital "St. Andrew "Galati, Department of Nephrology of this hospital.

The study was conducted in collaboration with the Department of Periodontology Faculty of Dentistry of Universitii "Gr T. Popa "Iasi.

Figure 5. 1. The Agreement for conducting research in Galați County Hospital

Evaluation of the oral health of patients in hospitals occurred in patients not capable, in the Department of Periodontology and in private practice office in Galati. This study was conducted from November 2011 to July 2012.

All patients from both groups were aged between 32 and 58 years.

- Test group
  To form the study group we selected thirty-six patients with chronic periodontitis and chronic kidney disease.

- Control group
  In the control group were identified and included thirty patients with periodontal disease but systemic healthy.
For each patient was prepared a study sheet, which, in addition to identification, included a number of elements key for structuring and description of study groups, important elements in achieving the main goal of this paper.

Exclusion criteria for both groups were:
- Systemic adverse conditions (rheumatic fever or heart problems that require antibiotic prophylaxis)
  - Pregnant woman
  - Women on hormone replacement therapy or hormonal therapy
  - Patients taking anti-inflammatory steroidal or non-steroidal (within 3 months) or antibiotics (previous 6 months),
  - Smoking
  - patients who have extremely high sensitivity at C-reactive protein (PCR) greater than 10 mg/L - conditions that could affect the progression of periodontitis.

To assess the metabolic control and to determine the evolutionary stage of BRC and periodontal disease, were conducted rigorous and comprehensive clinical examination were added to the laboratory investigations and specialist interclinic consults.

Data on the duration and course of BRC were obtained from patient history and record sheet of Ambulatory Emergency Hospital "St. Andrew " Galati , Department of Nephrology of this hospital that I previously concluded an agreement to conduct this research.

5.2.2 Periodontal evaluation

For periodontal register were measured, all 4 sides of the teeth and oral cavity was divided into four quadrants, used as the basic unit.

For recording the gingival inflammation were used gingival index Løe and Silness

Dental plaque was measured separately for each quadrant, patients were questioned about the frequency of visits to a specialist if they were regular control (the stink once per year) or sporadic.

Diagnostic clinical indices of periodontal disease used were:
- The plaque index
- ISP bleeding index (Papillary bleeding index Saxen and Mühlemann)
- PTNS index changed
- Gingival index
- The attachment loss assessed by periodontal probing and radiological examination.
- Depth of periodontal pockets
5.2.3 The laboratory evaluation - laboratory tests

Venous blood samples were taken (8 mL in the exhaust pipe) from patients after an overnight 12 hour post. Period of 24 hours urine collection ended in morning blood collection.

Figure 5. 2. Venous blood samples

Were measured serum and urinary levels of markers of renal function (urea, creatinine and albumin) and glomerular filtration rate was estimated from the elimination of creatinine and ratio modification of albumin (mg)/creatinine (g) in the urine sample at 24 hours.

The serum and determinations of urinary urea, creatinine and albumin were performed in a Daytona autoanaliser (fig.5.11). Reagents and the amount of serum uric acid levels was from Kovalent do Brasil Ltda. (Sao Goncalo, Rio de Janeiro), while those for serum albumin and serum and urinary urea and creatinine were from the kit Labtest Diagnostics SA (Belo Horizonte, Brazil). Samples of serum and urine were immediately analyzed after collection from the subjects.

Samples of serum and urine were analyzed immediately after collection of the patient.

5.2.4 Statistical Analysis

Chi-square test was used to determine if a group is set outside or within the reference range for a given variable in accordance with the frequency of patients in each group.

For comparison of quantitative variables means groups of student t-test was used in combination with either Mann-Whitney, significance was accepted when P <0.05. Data for the control group and the test group were also analyzed separately multivariate canonical correlation using SAS software, in order to find correlations between their canonical variables for periodontal diagnosis variables and markers of renal function.

5.3 Results

5.3.1 Background

The initial evaluation of patients aimed at highlighting the homogeneity of those two groups of the study, both with regard to biological parameters that define or
support the diagnosis, as well as the clinical and functional characteristics of the patient.

Among biological parameters, we observed that both immunoassays values that characterize the disease and the inflammatory tests were comparable for all the 2 groups investigated. Mean values were within the upper limit considered physiological. Gender distribution in control and test groups was similar: 13 men and 17 women in the control group and 20 men and 16 women in the test group. There was also no significant difference in age, the means and standard deviations were 43 ± 5 and 46 ± 6 years for those groups.

Consequently, global group structure, in terms of the distribution of patients according to sex, there was a predominance of females (52.9% versus 47.1%), female / male ratio being 1,1:1. There were no significant differences, groups exhibiting a similar structure in which the distribution of sex (p> 0.05).Mean age of patients with chronic periodontitis and chronic kidney disease was 42 years and for those with chronic periodontitis and without chronic kidney disease was 51 years.

5.3.2 Evaluation of periodontal parameters
Registration periodontal clinical parameters emphasizes the severity and extension of periodontal infection.

At consultation the patients had an index card on average 58 ± 20.7% and 63.5 ± 16.4% areas of bleeding in the survey; the average number of deep pockets was 77 ± 23, the attachment loss 4.93 ± 1.13 mm, and deep pockets 4.36 ± 0.59 mm.

Bleeding indices average value is 16% in the control group and 21% the test group. Deep pockets decreased from an average of 4.36 mm at the first meeting to 3.25 mm at 2 months and 3.19 mm at 6 months.

Recessions are average and attachment loss is 4.93 mm and 4.85 mm at 6 months.

The number of teeth and the proportion of superficial periodontal pockets (PPD and PD) between sites were higher in the control group, while higher values of all other variables were found in group test (P-0,006).

For PPD and PD values, the test group had a center distribution (average) greater than that of the control group (P-0, 001).

Several sets of analysis used in the control group showed that a greater number of teeth and the sites with PPD <3mm and AL <3 mm, low BOP and PI, are associated with higher levels of acid serum uric, urine volume and urinary urea, while the levels remained within the respective reference ranges. In addition, a large number of sites with PPD site between 3 to 5 mm correlated with higher rates of removal of creatinine. Analyzing the test group found that a higher number of sites with PPD site <3mm and low BOP were associated with higher levels of creatinine in urine and creatinine elimination and low serum albumin. Also, in the test group was observed
that a small number of sites with PPD > 6mm coupled with a low ratio albumin / creatinine, and a large number of teeth with high levels of serum urea.

Finally, the test group of low PI levels has been associated with higher levels of serum and urinary tracts of uric acid.

5.3.3 Evaluation of biochemical parameters

To assess the metabolic process characteristic of chronic kidney disease and periodontal disease were determined for all patients included biochemical markers features. There is no relationship between these values and the duration of the disease, but the acceleration shows often an active phase of the disease.

From the point of view of metabolic control in the population studied was noted a slight improvement in biochemical markers on patients with kidney disease, it is an indication of satisfactory metabolic control.

A slightly significant difference was revealed between the two groups in mean values of any variables. The same was true in glomerular filtration rate.

Following these markers of inflammation had observed that VSH was statistically significant, however the decreasing PCR is certainly systemic health effect (p = 0.032660). Known as the role of reactive protein C as a reliable marker of disease activity, these results confirm that the research of chronic kidney disease affects the mediators of immune response.

More correlative analysis, carried out in the control group, had showed that a greater number of teeth and the sites with PPD > 4mm and LA > 3mm, BOP and high PI, are associated with higher levels of creatinine, acid uric serum, urine volume and urinary urea, while the levels remained within the respective reference ranges.

Analyzing the test group found that a greater number of sites with PPD <3mm and increased BOP were associated with higher levels of urinary creatinine and elimination of creatinine and low levels of serum albumin.

Also, in the test group was observed that a small number of sites with PPD > 6mm correlated with a low ratio albumin / creatinine and a large number of teeth with high level of serum urea.

Finally, in the test group decreased PI was associated with higher levels of serum and urinary uric acid.

5.4 Discussions

In this study, we investigated the possible association between periodontitis and possible kidney failure by testing renal markers in two groups of patients.

In the control group were found superficial periodontal bags on 90% of all site sites, under AL and PPD data.

The control group showed AL around 7.63% of the sites and average severity of 1.0 mm, while the test group AL was recorded on 62.44% of the sites, with an average severity of 2.58 mm.
Thus, a dose of 8 times higher than in the mouth sites were affected by loss of attachment in the test group was 158% and more severe in test group than in the control group.

Analyzing the results of the PPD, the control group had lower values as the test values of the test group were higher.

As the extent that, more than 50% of the sites were affected sites in the test group, while the severity had an average of 2.25 mm, to 5.23% and 1.00 mm for the control group.

Therefore, the two groups were certainly quite different, showing that the members of the test group had severe periodontitis, while the members of the control group did not.

Our results are consistent with published data showing that periodontitis mild, moderate or severe was observed on patients with normal renal function assessed by levels of serum creatinine and urea and the density of urine.

5.5 Conclusions
1. Within the limits of this study and the methodology used, the results can be suggested that severe periodontitis was correlated but at the average level of renal dysfunction in the studied population. Further studies on the therapeutic intervention (tests before and after treatment) could make an important contribution to the strengthening of these results.

2. The results demonstrated that patients with periodontitis have undergone changes in serum or urinary markers of renal dysfunction compared with the control group, suggesting that periodontitis and periodontal treatment in certain circumstances may affect renal function.

Chapter 6
THE EFFECTS OF PERIODONTAL THERAPY BY BIOCHEMICAL MARKERS IN PATIENTS WITH RENAL DYSFUCTIONS

6.1 Introduction – The purpose of the study
Chronic kidney disease (BRC) is considered a global public health problem, mainly because of the high morbidity and mortality.

The fundamental idea on which we rely in formulating the objectives of this study is that the primary purpose of management of patients with BRC currently and probably still more in the future for these patients is to provide a "normal life" accomplished and independent. Integration means specific recovery medicine, according to the results of the analysis of the studied parameters, the multidisciplinary approach to the management of these patients.

Specifically, in this study we hypothesized that some of the chronic inflammatory response observed in patients with BRC comes to PC, who induces an increase in the expression of inflammatory markers.
6.2 Materials and methods

This study was conducted within ambulatory Emergency Hospital "St. Andrew "Galati, Department of Nephrology of this hospital.

Also the study was realized in collaboration with the Department of Periodontology Faculty of Dentistry of University "Gr T. Popa "Iasi.

Evaluation of the oral health of patients undergoing dialysis occurred in hospitals for non-transportable patients, in the Department of Periodontology and in private practice office in Galati.

All patients who had a diagnosis of chronic periodontitis PC have received periodontal treatment.

Patients were divided into two groups.

• The first group consisted of patients with BRC were subjected to conservative periodontal treatment.

• The second group was a control group consisted of patients without systemic disease who had moderate to severe PC, with site of sites (PPD) ≥ 5 mm, with at least one site with a high clinical attachment (CAL) ≥ 6 mm and radiographic evidence of alveolar bone loss.

This study included patients over 18 years who have not received any periodontal treatment, antimicrobial and anti-inflammatory in the last 6 months and have not used steroids or immunosuppressant.

From a total of 59 patients with BRC evaluated, 40 were eligible for the study. Four were excluded because of the necessity of dialysis treatment (2 patients) or hospitalization (2 patients).

In the control group, 22 patients were selected from a total of 123 individuals, except that 2 who were excluded: a patient became pregnant, and one patient had an acute infection of the upper respiratory tract.

Therefore, 36 patients in the BCR group and 20 in the control group had participated in this study.

Initially, patients underwent complete general medical examination.

Further, there were made a periodontal examination and a panoramic radiograph. Clinical assessment included evaluation of dental and periodontal status with plaque index (PI ), gingival index (GI), bleeding on probing assessment (BOP), PPD, PPD site sites with ≥ 5mm (PPD ≥ 5) and CAL. Periodontal examination was performed on six different sites site (meziooral, orally, distooral, distolingual, lingual and meziolingual) around each tooth. All examinations were repeated 3 months after periodontal therapy.

Both groups received instructions on oral hygiene techniques. Periodontal therapy non-surgical consisted in root planning and sub gingival curettage with Gracey curette and ultrasonic devices. After periodontal treatment, participants were
followed for 15, 30, 60, and 90 days. At each control visit was provided oral hygiene instructions and supragingival prophylaxis.

Blood samples were collected for biochemical analysis at baseline and at 3 months after periodontal therapy. Venous blood was collected in vacuum tubes between 7:00 am and 9:00 am after 12 hours after the last meal.

For comparison between BRC and control groups using student t-test for independent samples or the Mann-Whitney nonparametric test. For comparisons before and after periodontal therapy using t-test or Wilcoxon test.

Correlations between inflammatory markers and their relationship with periodontal clinical parameters were analyzed using either the Pearson correlation coefficient for variables with normal distribution and Spearman correlation coefficient.

Analyses were performed using the computer program SPSS 13.0 V.

6.3 Results

Patients in the study groups were homogeneous demographic and THE PERIODONTAL THERAPY was the only variable in both groups. The main cause of BRC was hypertensive nephrosclerosis (30.6%). Systemic disease associated identified most commonly in BRC group were hypertension (97.2%) and diabetes (27.8%). It is important to emphasize that no patient did not use statins or iron replacement therapy during the study. The study was conducted from March 2011 to August 2012 and was completed after participants monitoring was complete.

6.3.1 General data

Note that significantly higher percentage of men than women in the group with chronic renal disease. The control group is smaller percentage of men than women in the group without chronic kidney disease.

6.3.2 Analysis of periodontal parameters before and after initial etiological therapy

At baseline, the PC was more severe in patients with BRC than in the control group, as demonstrated most significant site with PPD ≥ 5mm sites (p = 0.03) and CAL (p = 0.003).
The effectiveness of periodontal therapy was indicated by significant decreases in levels of inflammatory markers and improved clinical parameters of PC observed at 3 months after completion of periodontal therapy.

6.3.3 The analysis of inflammatory biochemical parameters before and after initial etiological therapy

Values of inflammatory markers are significantly higher in the group of patients with chronic kidney disease.

The levels of IL-6 and CRP decreased significantly after periodontal therapy in both groups. In the control group, in addition to the decrease in inflammatory markers, a significant increase was also observed in hemoglobin associated with periodontal therapy.

In Pearson correlation, a significant association could be seen between periodontal therapy and serum PCR in BCR group and also in IL-6. Conform statistical analyzes none of the independent variables were not significantly and independently associated with the dependent variable in patients with BRC, while in the control group, only IL-6 (95% CI -45.40 to -4.49, p = 0.02) was significant.

6.4 Discussions

This study evaluated the impact of periodontal therapy on systemic inflammatory response and determined for the first time a causal association between periodontal disease activity and levels of biochemical markers of renal function. We included 56 patients with chronic periodontitis, 36 with chronic kidney disease and 20 with systemic disease and normal renal function (control group). Chronic kidney disease was defined as suggested by clinical practice guidelines of the National Kidney Foundation.

Chronic periodontitis was defined by clinical attachment level and probing pocket depth, according to the American Association of Periodontology. Markers were evaluated before and 3 months after periodontal treatment.

The efficacy of periodontal treatment was confirmed by improved clinical parameters of chronic periodontitis in the control group and the group with chronic kidney disease. Periodontal treatment resulted in significant reduction in C-reactive protein, interleukin-6 and serum levels of biochemical markers in both groups.

Inflammation plays a key role in the pathogenesis of atherosclerosis, and chronic systemic inflammation has been associated with undesirable cardiovascular outcomes in patients with BRC. However, the nature of the source of inflammation is not always identified. PC is a chronic infectious disease caused by Gram-negative bacteria that cause systemic response to local tissue destruction inflammatory. Local destruction of tissue promotes systemic spread of periodontal pathogens and their products as well as local inflammatory mediators, such as interleukin-1, IL-6, tumor
necrosis factor-α, and prostaglandin E2, among others. It showed that PC induces an acute phase inflammatory response that can be measured by serum PCR.

We noticed that the PC was more severe in patients with BRC than it was in patients without systemic disease. Moreover, at 3 months after TP, we observed a significant reduction of clinical index CAL and PPD, both being markers of severity PC, confirming the success of treatment.

While improving clinical PC, a decrease was observed in serum levels of IL-6 and CRP, both markers of systemic inflammatory response, in agreement with results of other publications.[10,13,20,21]

Taken together, these data indicate that the study may have a significant influence on the results. An association between periodontitis and kidney disease is often found in studies using a population where kidney disease is already diagnosed, the duration of end-stage renal failure and type of local and systemic treatment administered to patients affect significantly association.

As a result, we have shown that periodontal disease may promote any detectable change in renal function, even if the marker in question remains in its range for the reference or exceeds the upper limit of this interval.

6.5 Conclusions

1. Our conclusions suggest that periodontal disease is more severe in patients with chronic renal disease and induce a systemic inflammatory response.

2. Successful periodontal therapy reduces the load and decreases serum levels of inflammatory markers, indicating that it may be an important intervention therapy in patients with chronic kidney disease.

3. Considering that chronic inflammation is a risk factor for atherosclerotic cardiovascular disease in patients with hypertension and diabetes, the main causes of BRC, it is plausible that periodontal disease diagnosis immediately followed by periodontal therapy should be an important preventive measure in chronic kidney disease in daily clinical practice.

4. Our findings suggest that periodontal disease is more severe in patients with chronic kidney disease and induce a systemic inflammatory response. Successful periodontal therapy reduces inflammatory burden and lowers levels of biochemical markers, indicating that it may be an important intervention therapy in patients with chronic kidney disease.

THE ORIGINALITY OF STUDY

CONTRIBUTIONS TO THE DEVELOPMENT AREA

• Recent studies published in the literature that provide evidences regarding the increased prevalence of periodontal disease in patients with renal disease, particularly in patients on dialysis and in renal transplant recipients.

• Therefore, the present study aimed to assess the severity and the possible role of periodontitis in a group of patients with chronic kidney disease.
• We also examined the effect of periodontal treatment on long-term renal status of these patients.
• However there are still many conflicting studies regarding periodontal status in these patients and its influence on the underlying condition, so it is justified to conduct additional studies in this direction.
• The merit of this work is that it addresses the following scientific studies possibilities for periodontal disease risk assessment, in particular monitoring and criteria for treatment in people with chronic kidney disease and periodontal disease.
• The thesis reveals that pathologies with impaired renal evolving themselves determined by features of tissue reactions manifested by delayed healing, and greater susceptibility to infections that endanger the patient’s life.
• The picture becomes more complex when we consider the amount of endocrine metabolic disorders associated kidney failure, and they in turn causes a variety of changes in the periodontal tissues.
• The motivation of this study is established, and the occurrence of damage morphological, functional, aesthetic and psychological conditions that alter in varying degrees of life of patients with chronic kidney disease. Early knowledge of these phenomena may thus influence the evolution of the disease process.
• Particular aspect of the thesis derives from the attempt to establish correlations between the duration of pathology studied, both the systemic and the renal pathology and periodontal local echo the biological markers important indicators in assessing the state of damage.
• The criminalization of the type of treatment that patients with chronic kidney disease who carry the onset and evolution of odonto-periodontal pathology brings originality research directions outlined in the thesis.
• In addition the study aimed to original knowledge of periodontal disease prevalence among patients on hemodialysis and renal transplantation, knowing that a number of specific inflammatory markers can profoundly influence periodontal pathogenesis of many systemic diseases.
• In these variants the physician has a duty to find the most appropriate method and materials necessary to investigate all these aspects, in order to restore a functionality that affected the tissues.
• In this study the research team aims to provide useful information that will help to better care for patients suffering from these disorders.

GENERAL CONCLUSIONS

1. Chronic kidney disease includes essentially all chronic renal pathology. This has implications for multidisciplinary and requires knowledge tools for early diagnosis and treatment by all doctors in medical specialties.
2. Many metabolic and hematological disorders that develop in patients with BCR, which may also affect the oral cavity. Are affected: oral mucosa, teeth, salivary glands and jaw bones.

3. The most important features in patients with BCR are bleeding tendency, hypertension, anemia, drug intolerance, increased susceptibility to infection and the presence of several events associated with either the disease or its treatment either.

4. Oral manifestations of kidney failure include increased scaling, an increased rate of caries (due to elevated levels of uric acid in saliva), severe dry mouth, bleeding gums spontaneous secondary candidiasis and other fungal, bacterial or viral, increased tooth mobility, severe periodontal destructions due to a preexisting periodontal disease and tooth loss. Renal impairment in children can cause enamel hypoplasia and brown staining of teeth associated with narrowing of the endodontic space.

5. In patients with chronic kidney disease and hemodialysis were recorded different alterations in renal dysfunction due periodontal tissues and their association with infection as plaque given by way of diagnostic and therapeutic management of these cases was the purpose of my study clinically.

6. Evaluation of oral health with kidney patients batch gave the following types of diseases: dental caries, gum disease, temporomandibular disorders, ulcers, difficulty in chewing and fluid intake, edentulous, mobile teeth, fractures, dental malpositions, halitosis, infructuose occlusal edges, malodor, discoloration of teeth and pain. Our findings suggest that periodontal disease is more severe in patients with BRC and to induce a systemic inflammatory response.

7. Another study aimed at conducting clinical investigations in patients with chronic kidney disease. The peculiarity lies in the analysis results by the values obtained during dialysis treatment. We can say that there was a tendency for all clinical parameters to increase with duration of hemodialysis, but without reaching a significant level.

8. Therefore, patients receiving hemodialysis although some degree of immunosupresie they still can get a similar response to existing plaque that of their counterparts systemically healthy periodontal pathogens. Therefore, it can be suggested that, instead of the side-effects of therapy hemoemodializă, the primary cause of periodontal disease that is seen in patients who are hemoemodialysis is the amount of board.

9. Another study that evaluated the biological, noted that both immunoassays values that characterize the disease and the inflammatory tests were comparable for groups investigated.

10. Within the limits of this study and the methodology used, the results can be suggested that severe periodontitis was correlated but the average level of renal dysfunction in the studied population. Further studies on the therapeutic intervention
(tests before and after treatment) could make an important contribution to the strengthening of these results.

11. The results demonstrated that patients with periodontitis have undergone changes in serum or urinary markers of renal dysfunction compared with the control group, suggesting that periodontitis and periodontal treatment in certain circumstances may affect renal function.

12. Specifically, in this study we hypothesized that some of the chronic inflammatory response observed in patients with BRC comes from periodontal disease which induces an increase in the expression of inflammatory markers. This study evaluated the impact of periodontal therapy on systemic inflammatory response and determined for the first time a causal association between periodontal disease activity and levels of biochemical markers of renal function.

13. The efficacy of periodontal treatment was confirmed by improved clinical parameters of chronic periodontitis in the control group and the group with chronic kidney disease. Periodontal treatment resulted in significant reduction in C-reactive protein, interleukin-6 and serum levels of biochemical markers in both groups.

14. Finally we can state that our findings suggest that periodontal disease is more severe in patients with chronic kidney disease and induce a systemic inflammatory response. Diagnostic rigorous and successful periodontal therapy reduces inflammatory burden and lowers levels of biochemical markers, indicating that it may be an important intervention therapy in patients with chronic kidney disease.

References


