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RESEARCH OF PERIODONTAL STATUS AND TREATMENT NEEDS BY CPITN IN PATIENTS ON HAEMODIALYSIS AND RENAL TRANSPLANTED PATIENTS

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SUMMARY:

The aim of the present study is to estimate the periodontal conditions and treatment needs by CPITN of 150 patients - 45 (30%) on haemodialysis, 45 (30%) renal transplanted patients and 60 (40%) healthy controls, age between 18 and 84.

The oral health of this population gives rise to a big interest within the past ten years. The interest about oral status is caused not just from age changes, but also from characteristic changes through main illness, dialysis and immunosuppressive drug therapy. Early prevention and diagnostics of oral diseases can improve the health status and graft survival of patients in ESRD.

Key words: CPITN, renal transplantation, haemodialysis, parodontal health, ESRD, .

INTRODUCTION:

The interaction between oral health and chronic renal disease and renal replacement therapy (4, 5, 9, and 12) are subject of many studies during the last ten years. This scientific interest refers directly to the rising number of ESRD patients and renal transplanted patients worldwide. The situation in Bulgaria is different- the increasing number of patients on haemodialysis compared to the decreasing number of renal transplanted patients (1). The dental activities for optimal oral health during the dialysis before and after transplantation should be synchronized with the professional opinion of nephrologists (2). Untreated periodontal diseases can compromise the immediate post-transplant period (2, 7, and 10). The main reasons of gingivitis in these patients are immunosupression, renal failure, which leads to renal osteodistrophy, and poor oral hygiene (6, 8, 11, 12 and 13).

The purpose of the present study is to estimate periodontal findings by patients with renal replacement therapy, as well as to determine the relevant treatment needs according to their health status.

Future investigations of maintained oral health in patients, waiting for renal transplant, will increase our knowledge concerning the importance of creating dental protocol, which must be a part of pre and post transplant protocol of each ESRD patient (2).

MATERIALS AND METHODS

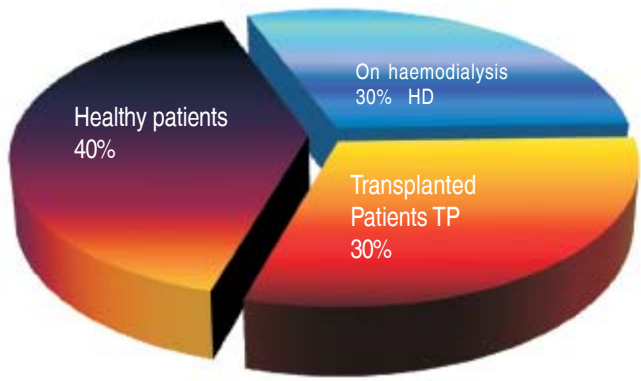
The study protocol was approved by the Bulgarian Council of Medical Science. All the 150 participants have given their confirmed consent after being introduced to the aim of the research by a letter of invitation (Figure 1).

Group HD – patients on haemodialysis, 26 (57, 8%) female and 19 (42, 2%) male from Clinical dialysis center of the "Alexandrovska" hospital and dialysis centers in the towns of Gabrovo, Karlovo, Velingrad and Smolyan.

Group TP- 45 (30%) renal transplanted patients -25 (55, 6%) female and 20 (44, 4%) male from the nephrology and transplantation clinics of the "Alexandrovska" hospital.

Group K 60 -renal healthy controls, 20 (40%) male and 40 (60%) female, tested with blood and urine tests and filing-in questionnaire about genetic predispositions.

Figure 1. Distribution of the participants in the research



All patients were asked not to brush their teeth before the examination.

The CPITN was a part of a complex focal diagnostics, developed in FDM- Sofia. The CPITN was registered with

CPITN probe*. Periodontal examination of patients on haemodialysis took place on a day after dialysis, in order to avoid unnecessary and long lasting bleeding during probe.

Renal transplanted patients and healthy controls were checked on the initial examination day.

The Community periodontal index of treatment needs CPITN is an epidemiologic tool, developed by the WHO, for the evaluation of periodontal disease. (3) All teeth were examined, divided into 3 segments on each maxilla and mandible: sextants **1** (17, 16, 15, and 14), **2** (13, 12, 11, 21, 22, 23), **3** (24, 25, 26, 27), **4** (47, 46, 45, 44), **5** (43, 42, 41, 31, 32, 33), **6** (34, 35, 36, 37). Third molars are not subject to the research, unless they function instead of second molars. Sextants with less than two teeth, indicating for extraction, were labeled with code CPI9.

The worst finding in each sextant is given a code as per the table below. The maximum code for the entire mouth cavity is used for treatment recommendation.

Table 1.

Findings	**Code**
Pathologic pockets ≥ 6 mm deep , black band on the probe not visible	4
Pathologic pockets ≥ 4-5mm , gingival margin within the black band on the probe	3
Calculus detected during probing, inexact orthopedic restorations, but all the black band on the probe visible	2
Bleeding observed, after gentle probing	1
Healthy	0

Table 2.

Maximum score	Treatment recommendation
0	No need for additional treatment
1	Need to improve of personal oral hygiene
2	Need for professional tooth cleaning, as well as improvement of personal oral hygiene
3	Need for professional tooth cleaning, as well as improvement of personal oral hygiene
4(3)	Need for more complex treatment, subject to infected tissue removal

STATISTIC AL ANALYSIS

All analyses were performed using SPSS 17.0.1. The χ^2 tests and the precise Fischer test were used to determine the association between group and CPI. The level of statistical significance was $P < 0.05$.

RESULTS

I. General CPI by groups

Table 3 shows that the frequency of CPI3 and CPI2 in group K is more significant than groups HD and TP. CPI2 is significantly higher than CPI3 in group K in comparison to HD and TP groups. CPI4 is significantly higher than CPI1 in HD and TP groups compared to group K.

Table 3. Frequency distribution of CPI by groups

Groups	Statistics	CPI4	CPI3	CPI2	CPI1	CPI0	CPI9	Total
HD[a]	n	12	13	13	1	0	6	45
	%	26,67	28,89	28,89	2,22	0,00	13,33	100,00
TP[a]	n	4	11	27	3	0	0	45
	%	8,89	24,44	60,00	6,67	0,00	0,00	100,00
K[b]	n	1	4	43	12	0	0	60
	%	1,67	6,67	71,67	20,00	0,00	0,00	100,00
Total	n	17	28	83	16	0	6	150
	%	11,33	18,67	55,33	10,67	0,00	4,00	100,00

* - the same letters indicate a lack of significant difference, while the different letters mark availability of a significant difference ($p<0.05$).

• 27% of HD patients suffer deep parodontal pockets ≥ 6 mm (CPI 4) and 29% have pockets of up to 5 mm (CPI3), 29% CPI2, i.e. sub and/or supragingival calculus, in precise orthopedic restorations(bridges, crowns) and fillings. The frequency of sextants without a minimum of two teeth CPI9 was higher compared to groups K and TP. The need for

* A specially designed lightweight CPI probe with a 0, 5 mm ball tip, with a black band between 3, 5 and 5 mm and marks on 8, 5 and 11, 5mm from the ball tip.

complex and specialized treatment (TN 3) in HD patients was higher than of K. Therefore, in group HD the treatment needs are the most complex ones.

• 60% from group TP have gingival pockets of up to 3,5 mm and sub-and/or supragingival calculus. The percentage of patients with code CPI 3 is also high, shallow pockets of up to 5 mm and it requires the above- mentioned treatment activities.

Most patients in group K (71%) were with CPI2.

• In none of the three groups were we able to find a patient with healthy parodont in all sextants CPI0.

CONCLUSIONS:

The parodontal therapy is a very important part of complex focal sanitation in patients, receiving renal replacement therapy, including haemodialysis or renal transplantation.

In group HD it is determined that the heaviest periodontal issues with full symptomatic, which requires complex treatment (TN 3).

Patients on haemodialysis are future renal recipients, i.e. dental sanitation for their group is imperative. The other tendency in the group is the higher rate of tooth loss (19%). In this case, the logical questions are: Are this tooth losses through orthopedic restoration with dentures or bridges and crowns optimally reconstructs and is their masticatory function effective?

The purpose in group TP is early prophylaxis of active focal infections in first three post-transplanted months (2, 6, and 8) when the biggest danger for graft rejection exists.

The periodontal status of this group shows better indexes compared with these of group HD. The main treatment needs are oral hygiene instructions and professional removal of dental plaque and calculus CPI 2.

We also detected a high level (71%) of CPI2 in group K- health controls. Although it was not the aim of the

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