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Journal of Chemical and Pharmaceutical Research

J. Chem. Pharm. Res., 2010, 2(4):914-922

ISSN No: 0975-7384
CODEN(USA): JCPRC5

Adult hemodialysis patients with end-stage renal disease, secondary hyperparathyroidism according to etiologies and itching assessment

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ABSTRACT

Secondary hiperparatroidizm (SHPT); mineral and bone disorders or diseases into the area, disrupt the quality of life, mortality is a disease. Our patients with end stage-renal disease (ESRD) treated with our previous studies our attention is the prevalence of SHPT and the possible relationship between the etiology and symptoms of itching to reveal, constitute the purpose of our study. Permissions are included in the study based on 71 (73-2) the whole patient, three sessions per week and admitted that at least four hours each session, consisted of adult individuals. Two patient not included in the study, because they had been operated total parathyroidectomy. Blood samples of patients, taken before the start of prehemodialysis treatment, blood clots you've, in our unit was centrifuged and the sera were submitted by laboratories comply with cold chain. This study in November 2008, including in October 2009 lasted 12 months. Study, four stages were followed, first as a grouping of etiology and 12 months were made by taking the average patient groups were formed. SHPT research groups of the second stage, third stage of the research has been itching symptoms. Itching symptoms in all patient groups and patients with SHPT, were identified separately. The fourth leg of the study consisted of statistical studies of the symptoms of itching. Overall incidence for all groups of SHPT patients were not aqual (P = 0.003 <0.05). The incidence of SHPT on an annual basis, most FMF group, in 2 cases out of a total of three patients with type II DM in a third frequency, a total of 27 patients, 12 were in sin. The incidence of SHPT 7.grupta least, that the etiology of pyelonephritis in patients with SHPT as one in six people have been identified. All patients with symptoms of itching in our 23% diagnosed with SHPT and 50% of our patients, respectively. The distribution of symptoms like itching has according to the groups, group 1: 10%, group 2: 21%, group 3: 18%, group 4: 66%, group 5: 40%, group 6: 50%, group 7: 16%, group 8: 50%. SHPT in our patients were diagnosed as having symptoms of itching distribution according to groups: 1.group: 50%, 2.group: 60%, 3.group: 33%, 4.group: 100%, 5.group: 50%, 6.group: 100%, 7.group: 0%, 8.grup: 100% were found to be. This survey included all of our patients studied parameters, SHPT prevalence similar studies with increased itching symptoms is 23% as

highly increased, the rate SHPT diagnosed ten used in patients at increased and 50% respectively. In this case, the unit of the patients 70% of hemodialysis patients have long been explained.

Keywords: ESRD, Secondary Hyperparatiroidism, Ithcing

INTRODUCTION

The first be connected between kidney disease and bone disease in London, the 19th century, when the fish liver oil was discovered, developed in response rahitis. Fish liver oil, vitamin D is active in later years discovered that the basic substance, for a long time after it has been demonstrated in vitamin D deficiency were treated. Therefore rahitis called renal disease treated with vitamin D there were. Several authors in patients with renal failure who died in the years 1930-1940 in the end of the autopsy, parathyroid gland have identified significant growth. The clinical significance of this difference, however, was not at that time, because it was included in the class of uremic fatal consequences of this information unnecessary detail (7.11.23). Dialysis treatment in patients with ESRD prior to the detail provided by a prolonged thing called life, suddenly became important. Scribner and his colleagues have suggested that the first dialysis patients over time turned into stone (large metastatic calcifications) (11.16.23). 1960 's. By the year, the dialysis patients, especially bone pain, cystic bone lesions, X-ray absorption (subperiosteal), hypercalcemia, hyperparathyroidism, including properties developed. This is referred to as tertiary hyperparathyroidism because the parathyroid glands of secondary hyperparathyroidism after the formation of long-term due to persistent hypocalcemia has been autonomous state (7.23). As briefly outlined the historical process, which are effective in hemodialysis patients based on the situation in the formation of bone diseases, secondary hyperparathyroidism. Glomerular filtration rate (GFR) 50-70 mL / min, which is available in most patients with SHPT. SHPT is not available in all hemodialysis patients. Slightly higher iPTH levels and bone histology in some patients with ESRD did not affect the appearance. This is usually less than the clinical signs of bone disease, also called non-dynamic. Another toxic effect on bone aluminum exposure situation. The use of phosphorus binders containing aluminum due to aluminum bone disease, a serious reduction in today and after the increase in the quality of hemodialysis water systems appears to be an extremely rare condition (16). Whereas often the main causes of uremic hyperparathyroidism, a condition common among patients with ESRD are shown hypocalcemia (16.21). Yet another reason to be circulating in the blood and another of low levels of calcitriol, phosphate retention. The reason for the low 25-hydroxyvitamin D3 in kidneys Calcitriol reputation depends on a decrease in renal 1-hydroxylation. Calcitriol receptors in parathyroid cells by affecting the level of pre-pro-PTH parathyroid hormone messenger RNA, which inhibits the synthesis of calcitriol, in cases of uremia due to reduced receptor density, the reduced sensitivity of cells pratroid. Showing a direct effect on parathyroid gland hyper-phosphate on the other hand stimulates secretion of PTH. In conclusion, reduced levels of calcium, phosphate rises, the parathyroid gland hyperplasia and hypertrophy occur, parathyroid gland grows up a few times. This can be summarized briefly the relationship between ESRD and SHPT. The first step for the correction of secondary hyperparathyroidism and hyperphosphatemia in the patient's diet to reduce intake of phosphorus. Foods rich in phosphorus (table1), milk and dairy products, liver, meat, legumes can be summarized as. However, diet alone is not sufficient in many patients, and calcium carbonate, calcium acetate should be used, such as phosphorus-binding agents. Aluminum containing phosphate binders are not preferred much because of severe toxicities. Despite adequate treatment, Applied and parathyroid hormone (CaxP), calcium phosphorus product cost, and long-lasting persistent itch may be needed to parathyroidectomy in patients with tertiary

hyperparathyroidism in mind (21). Itching of the survey concerning this symptom in patients with ESRD has seen between 5% to 10%. Etiology of renal amyloidosis in hemodialysis patients with these symptoms to be higher again, studies have been revealed. However, itching has been happears in patients undergoing hemodialysis for a long time as 20% (4.13.19).

EXPERİMENTAL SECTİON

Methods

This study for a period of 12 months (2008 November-2009 October), obtained from a total of 71 patients follow-up data in the form of statistical studies and the results were interpreted retrospectively. 2 outpatients are not included in the study sessions of hemodialysis treatment three times a week to see, them consist of people who were undergoing total paratroidektomi. These patients were not included in the study were evaluated by the general surgeon. Center that serves adult hemodialysis patients with end-stage renal disease, the majority of patients admitted for treatment, etiological diagnosis (ED) was diagnosed was composed of individuals organized even treatments. Unplaced in patients with diagnoses of the ED 's necessary tests have been done by us. ED 'also holds an important place in medical history information is taken personally by the physician in charge, first-degree relatives of patients were added to some of the tests. Study data, is protected by a special register prepared forms.

Owing to the importance of predialysis blood samples have been taken, the samples, the center of the electro-coagulation process - the process of centrifugal device and subjected to mag m 4812 sera separated. The contracted laboratory for the study, adhering to the cold chain was sent. In the laboratory, with the VITROS 5.1 VITROS FS Architect 2000 SR 950 devices and Abott and Beckman Coulter Access 2 devices were used. Correct the tests are likely to be re-tried a second laboratory and the results are correct forms of data records has been done particular attention. The term is used in all of Ca, calculated in accordance with the level of serum albumin-corrected Ca. Corrected meaning of amount of calcium (Ca), we could compute the formula: corrected Ca = measured total Ca + 0.8 x (4 – serum albumin level). All patients were treated in our center and included in the study, the K / DOQI guidelines requirement (6), three sessions a week and every four-hour therapy session 'attention also was into. Special attention was given to all patients during the study diet. In particular, phosphorus restriction was required warnings. Because as it is known, in patients with ESRD oral foods, due to the loss of kidney function, blood biochemistry directly affected. It is reason; head office staff under the 'nutrition and diet in hemodialysis patients' certified by a physician, patients with oral purchases, again in cooperation with the center nutritionist, specially kept under control. Dialysate calcium concentrations, the calculated and treatment protocols designed specifically for each patient. For a diagnosis of SHPT study the K / DOQI Guidelines on the basis of values, some of the parameters examined in the normal ranges of blood tests of patients (range), the Ca: 8.4-9.5mg/dL, P: 4.5-5.5mg/dL, CaxP <55, iPTH <300pq / ml, ALP, 30-115 U / L (alkaline phosphatase) was considered to be. Dialysis solution, the Ca: 1.25-1.75 mM, some patients have been accepted custom designed solution. The study was conducted in four major stages. In the first of these patients, the etiologic diagnostic groupings were collected from eight main headings, the number of patients falling etiologic groups, 12 were determined on the basis of monthly averages. In the second phase, groups SHPT etiologic diagnosis was made of the necessary laboratory tests (Ca, P, iPTH, ALP). The third stage is research symptoms of itching, and SHPT patients in all patient groups, was determined separately. In the fourth leg of the study consisted of itching symptom of statistical work. Built in 2008 on the basis of the Turkish Registry Etiology groups: group 1: patients with unknown etiology, group 2: patients with ESRD due to hypertension, group 3: patients with ESRD due to type II dm, group 4: fmf preliminary

diagnosis hospitalized patients with ESRD, group 5: ED's patients with polycystic kidney, group 6: ED's patients with urological diseases, group 7: ED's patients with pyelonephritis, group 8: others covering the causes, such as malignancy, etc. has been shaped.

Etiologic groups of patients with ESRD 12-month average numerical values:
Group 1: patients with unknown etiology; year is 10 people. Group 2: the etiology of hypertension, 14 patients a year. Group 3: 27 patients with type 2 diabetes patients with ESRD etiology. Group 4: fmf-3 patients etiology of renal amyloidosis. Group 5: 5 patients with polycystic kidney. Group 6: 4 patients with urological diseases. Group 7: 6 patients with pyelonephritis. Group 8: the others were identified as 2 patients.

Numerical values of the average 12-month prevalence of SHPT:
2 patients of group 1, 5 patients of group 2, 12 patients of group 3, 2 patients of group 4, 2 patients of group 5, 1 patient in group 6, 1 patient in group 7 and group 8, of them was SHPT. For the majority of all groups not equally (differently) there has SHPT prevalence ($P = 0.003 < 0.05$). SHPT prevalence of 12-month average, a total of 3 patients in group 2 had a very fmf out, type II DM in the third as often as the total of 27 patients was 12 here. At least the incidence of SHPT in group 7, the etiology of pyelonephritis in patients with SHPT in the form of a sixth person has been determined.

% In total and 12-month prevalence of SHPT in the values of each group:
All patients were given the prevalence of SHPT 71 people out of 26 ie 36.8%, this percentage distribution of the groups were as follows: group 1: 2.8%, 7% in group 2, 16.9% group 3, 2.8% for group 4, 2.8% 5. group, 1.4% for group 6, 1.4% group 7, group 8 was 1.4% and the third of SHPT. For the majority of all groups not equally there has SHPT prevalence ($P = 0.003 < 0.05$). SHPT in the incidence of intra-group assessment, the multi-fmf group, 66%, 44% of type II DM group, was seen as. SHPT is at least seen the study group had pyelonephritis group (16%). Itching symptoms were 23% in all patients. This rate is SHPT diagnosed cases, 50%, respectively. The distribution of the groups in the figure 2 as set out in the more than 66% of the FMF, the second form of the HT group was 60%.

All patient groups and the SHPT group, incidence of symptoms of itching:
Symptom Itching all patients (71 patients) 23% (17 patients), diagnosed with SHPT (26 patients) in patients 50% (13 patients), respectively. Itching is the distribution of symptom groups was as follows: group 1: %10 (1 patient), group 2: 21% (3 patients), group 3: 18% (5 patients), group 4: %66 (2 patients), group 5: %40 (2 patients), group 6: %50 (2 patients), group 7: %16 (1 patient), group 8: %50 (1 patient). SHPT patients diagnosed with symptoms of itching distributions according to the groups: group 1: 50% (1 patient), group 2: 60% (3 patient), group 3: 33% (4 patients), group 4: 100% (2 patients), group 5: %50 (1 patient), group 6: 100% (1 patient), group 7: % 0, group 8: 100% (1 patient) respectively.

Statistical Study Results:
1. All patient groups are not equal for the whole there has SHPT prevalence ($P = 0.003 < 0.05$).
2. Itching is the frequency of symptom occurrence in all groups, and there has SHPT not equal groups. SHPT group was significantly higher ($P = 0.001 < 0.05$).
3. The data in this study, the level of significance was analyzed by SPSS 17 statistical package program (based on assessment a significant $p<0.05$). Statistical analysis, the C group (prevalence of symptoms of itching in patients diagnosed with SHPT) and D group (prevalence of symptoms of itching in all patient groups) values, the Mann-Whitney U test was used to compare non-parametric tests

DİSCUSSİON

Studies have show high turnover bone disease, low turnover bone disease, the most important differences in the laboratory, the height of iPTH and ALP levels, P levels, Ca levels in the mild hypocalcemia tend (Silver et al and Francsisco Liach et al). Included in the study of some parameters used in the diagnosis of adult hemodialysis patients with SHPT range of Ca interval: 8.4-9.5mg/dL, P: 4.5-5.5mg/dL, CaxP <55, iPTH <300pq/mL, ALP 30-115 U / L (alkaline phosphatase) was considered to be. Hemodialysis solution, the Ca: 1.25-1.75 mM, some patients have been accepted custom designed solution. The study looked at the height of these parameters, most notably blood P value (P >5.5mg/dL), such as the relatively low level of 20% has come out. However, according to research carried out (J. Lindberg et al, a long-term, multicenter study of the efficacy and safety of paricalcitol in end-stage renal disease), the blood phosphorus levels, including first feeding (P >5.5mg/dL) depends on a number of factors.

Thus, hyperphosphatemia is also an issue to investigate and research, the study is among the team projects. We particularly focused on symptoms of itching, as a cause in our clinic for patient examination and research to attract attention as the occurrence of this situation is shown. Itching of the SHPT understand the importance of this symptom (10.16) in patients who have had total parathyroidectomi dramatic enough to guess the missing information. Indications for parathyroidectomy by Daugirdas shown in third place among the persistent itching, included in the study of two patients, we do not 'completely disappeared after the parathyroidectomy operation. Itching symptoms in studies of 5-10%'s on is seen, but the rate increased with increasing duration of dialysis are entering (4.16). In our study 23% of all patients with symptoms of itching, in patients with SHPT, such as the high rate was 50%. FMF symptoms of itching, HT, tip II DM etiology in patients with higher out of this situation other than the factors of Ca 'brought to mind may be due to the (multifactorial, advanced age, amyloid deposits, long-term dialysis, etc.). The distribution of etiologic diagnosis of our study groups were generally in line with the Turkish Nephrology Association Registry 2008. However, remarkable differences in terms of the FMF (Turkish Registry 2.2%, 4.3% in our study). On the other hand, Isılay N et al a retrospective single-center study, Field Artillery, the results were very close to our values (4.6% of renal amyloidosis). Multicenter registry, such as Turks, not a single-center study of this situation is connected. Etiologic diagnosis of Type II DM groups, 'there is a similar situation. That is to say the Turkish registry patients in the type of DM 21%, while 38% were determined in our study, this situation was compatible with the European and USA s registry. Another important pillar of our work to create the distribution of etiologies according to the SHPT is not determined by a similar study on this issue before. Owing to the importance of the issue, however, both in terms of mortality and morbidity as well as more detailed, almost scientific investigation of the multicenter studies in the middle stands as a necessity.

CONCLUSİON

The incidence of ESRD by 36% in adults SHPT patients was identified and found to be compatible with the research in this situation. Itching symptom of our patients in all groups appeared as high as 23% of the total, the patients in this situation 70% of the entry into long-term dialysis are described. On the other hand 50% of patients diagnosed with severe SHPT were itching. SHPT in patients with FMF and itching symptoms most commonly seen in the groups were found in the eye-catching. Conviction that this situation is that, with more patients, longer follow-up and a lot of period in the region at the same time (multicenter) with data from studies in the future will be presented more clearly.
phosphorus-rich foods

Table1: phosphorous – rich foods

Dairy products (milk, yogurt, cheese, especially cheddar cheese 563mg)
Liver, meat (especially red meat, fish, fish at least 180mg phosphorus levrektedir)
Legumes (dried beans and barbunyada the most numerous, 450mg)
Hazelnut 337mg, 500mg Pistachios, Walnut 380mg.
There is more phosphorus in vegetable, most garlic 202mg, there are at least “madımak”
Cola drinks and alcoholic drinks
Cereals (wheat 300mg) and made them bread (especially wholemeal bread)
P has at least 1mg olive oil, mayonnaise 23mg most
P there is more than fruits, dried apricot maximum 67mg
Maximum of 142mg P chocolate desserts

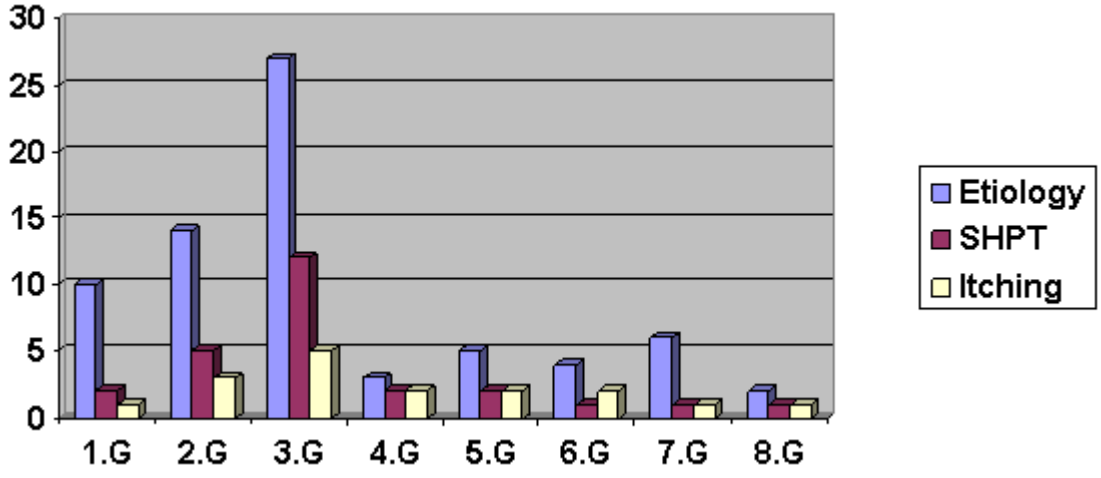
source: diet in hemodialysis patients.

Table 2: All the groups of patients with SHPT and the incidence of itching, incidence of itching in patients diagnosed with SHPT.

	A	**B**	**C**	**D**
1.Group:unknown etiology	10	2	1	1
2.Group:hypertension etiology	14	5	3	3
3.Group: Typ II DM etiology	27	12	4	5
4.Group:FMF etiology	3	2	2	2
5.Group:polycystic etiology	5	2	1	2
6.Group:urologic etiology	4	1	1	2
7.Group:pyelophrites etiology	6	1	0	1
8.Group:other etiology (malign,vs)	2	1	1	1
TOTAL	**71**	**26**	**13**	**17**

Looking at the results, group C, ie 26 patients diagnosed with SHPT prevalence of symptoms of itching, 13 patients (50%) were found to be on the other hand, 17 patients (23%) with symptoms of itching in all groups, 71 patients were found. According to this result, group C % of group D as was quite high. The SPSS 17 statistical study, a significant difference was found between the group C and group D ($P = 0.001 < 0.05$). Group A: the distribution of etiologies of patients, group B: patients with SHPT prevalence of etiologic groups, group C: patients diagnosed with SHPT prevalence of symptoms of itching, group D: The incidence of symptoms of itching in all patient groups.

Graph 1: All the patients etiologic group with SHPT and the incidence of itching (column: numeral patients in groups)



Graph 2: All the groups of patients with SHPT and the incidence of itching (line: etiologic groups, column: numeral patients in groups)

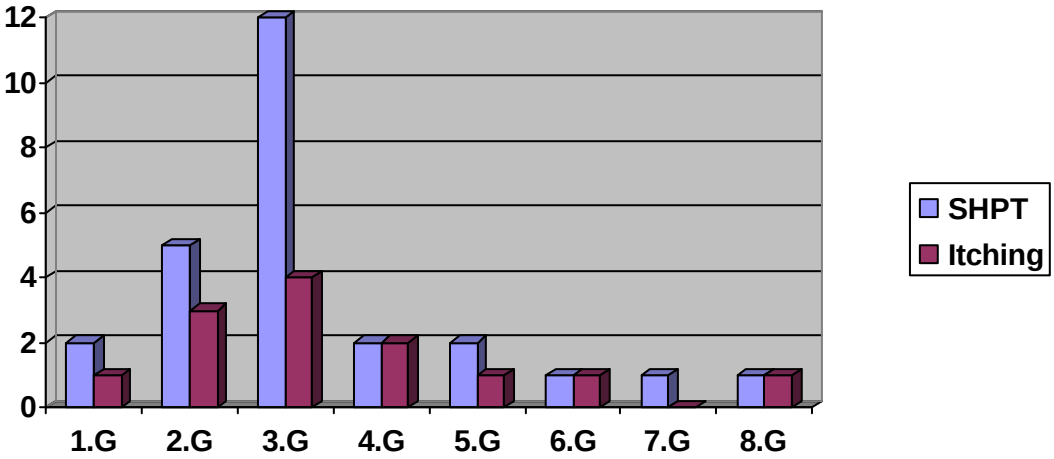
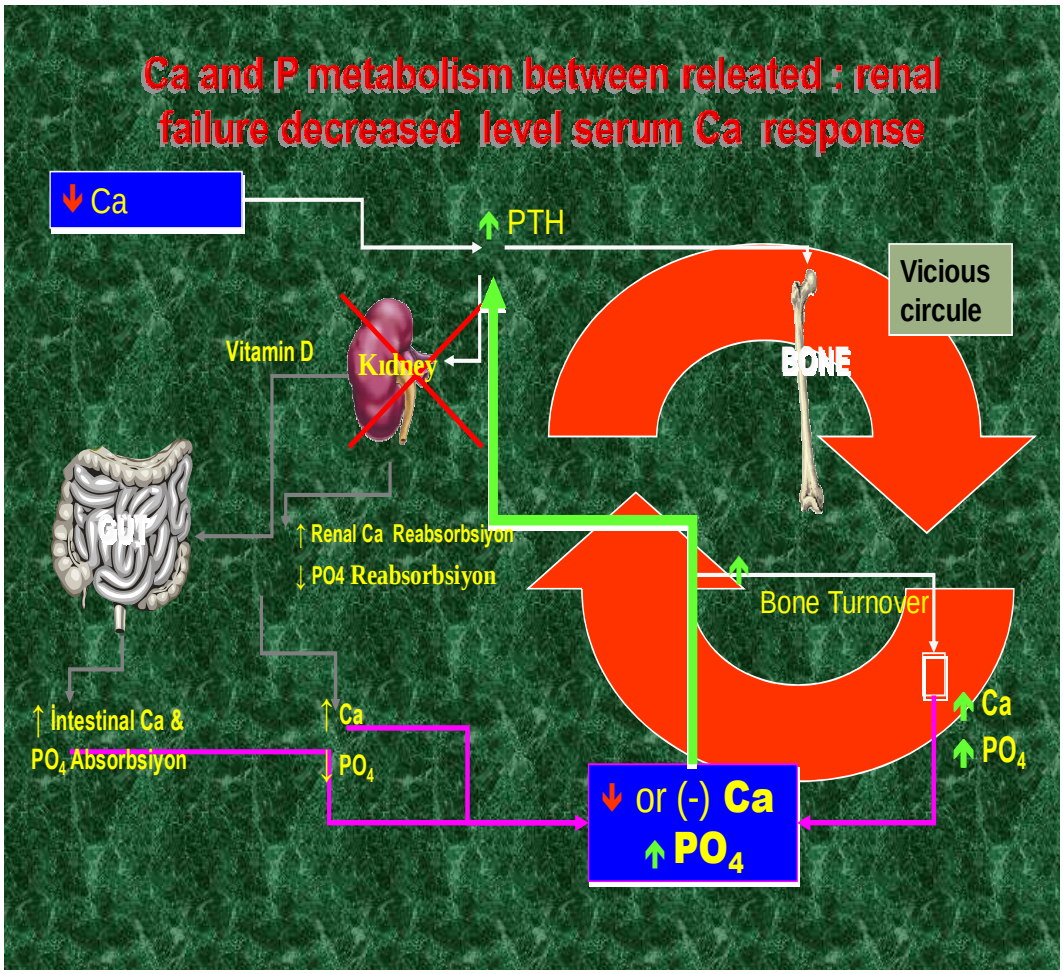


Figure1: Ca metabolism occur vicious circule in the end stage renal disease



Acknowledgment
The authors thank Ahmet Bal, Esef Bolat, and bioistatistician Ahmet Pekgor.

Critical Assessment

Prof Dr. Sadık Buyukbas, Dicle University Medicine Faculty, Clinical Biochemistry Department, Md, Diyarbakır.

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