

Assessment of Periodontal Status in Nephrotic Syndrome

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Abstract: ***Aim:** To evaluate the Oral Hygiene Index (OHI), Periodontal Index, Gingival Index, Serum albumin levels and Assessment of Mucosal Lesion in Nephrotic Syndrome patients. **Material and methods:** A Total number of 20 Nephrotic syndrome patients within the age group of 18-50 years were included in the study. By the means of the documentary method of personally addressed inquiry we obtain essential data regarding the common health status. After selection of case, based on the inclusion & exclusion criteria, the assessment of oral hygiene status, gingival status, mucosal status, serum albumin levels and laboratory blood investigations were performed. **Results:** Among 20 patients, 50% (n=10) Patients had poor oral hygiene and 50% (n=10) patients have fair oral hygiene. Where 60% (12) patients had mild gingival inflammation and undergoing treatment since last 2 years, and 40% (8) patients had moderate gingival inflammation and undergoing treatment since last 1 year. And 70% (14) patients had mild gingivitis and 30% (6) patients had negative gingival score. **Conclusion:** The present study showed that untreated Nephrotic Syndrome patients showed poor oral hygiene, where as the patients undergoing early medical treatment showed fair oral hygiene status, therefore early diagnosis and treatment of Nephrotic Syndrome at young age will prevent the further periodontal destruction.*

Keywords: Nephrotic syndrome, oral health, gingivitis, periodontal index, gingival index, OHI

1. Introduction

As technology and medicine advances, the oral health care professionals also have to attain a holistic approach to the management of patients with complex medical problems. Among all the systemic disorders, diseases of the renal system pose a major cause of morbidity and mortality worldwide¹, as the kidneys are vital organs for maintaining a stable internal environment i.e. homeostasis.² India, is now becoming a major reservoir of chronic diseases like diabetes and hypertension. This burden is expected to rise and thus, health care professionals need to take care of them. The Nephrotic Syndrome (NS) Nephrotic syndrome is a common chronic disorder that is characterized by alterations of permselectivity at the glomerular capillary wall, resulting in protein loss through the urine. The clinical condition with a proteinuria level exceeding the body's compensating abilities (protein loss over 50 mg/kg/day). Proteinuria results in hypo and dysproteinemia hyperlipidaemia, modifications in immunoglobulin composition (including decreased IgG levels), which additionally impair the body's immunity.^{1,6} The onset and progression of the systemic disorders of pyelonephritis and Nephrotic Syndrome are related with the necessity of frequent hospitalization. Efforts of doctors, parents and patients are concentrated on overcoming the somatic problem. The protocol of proper therapy of Nephrotic Syndrome and pyelonephritis includes, specific dietary regime with limitation of proteins-enriched foods and predominant consumption of fruits and carbohydrates, application of antibiotics mainly; aminoglycosides- Amicacin, Gentamycin, Rocephin, Fortum, semi-synthetic penicillines-piperacillin. To

reinforce the anti-inflammatory efficiency of antibiotics, these are combined with anti-pyretic medicines and non-steroid anti-inflammatory drugs.⁵⁻⁹

Nephrotic Syndrome is one of the chronic illness and is characterized by increase amount of protein in the urine, hyperlipidaemia, hypoproteinaemia, decreased protein in the blood, high cholesterol levels and swelling. Various studies have reported oral manifestations with chronic renal failure and End stage renal disease (ESRD) due to decreased host-immune response and periodontal diseases are associated with various systemic diseases,^{4,10} but there are very few studies which shows oral health problems with Nephrotic Syndrome. Hence present study is undertaken to evaluate the prevalence of gingival condition, mucosal status in patients suffering from Nephrotic Syndrome and to provide a good dental awareness for these patients.

2. Material and Methods

The present study was conducted in the department of Nephrology at CHIRAYU Hospital, Kalaburagi, Karnataka. A total number of 20 patients were selected based on the inclusion and exclusion criteria. Informed and written consent were taken prior to the commencement of the study from the patients.

Inclusion Criteria

- Patients should be aged above 20-50 years.
- Patients diagnosed by Nephrologist / Physician as nephrotic syndrome individual

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Exclusion criteria

- Patients with advanced renal failure defined as GFR < 30 ml / min and patients with disease duration of less than 3 months were excluded from the study.
- Medically compromised patients.
- Pregnancy

A prospective study was conducted on a total of 20 patients with following clinical parameters; Simplified oral hygiene index, Gingival index, Mucosal lesion assessment, Laboratory blood tests (total protein, albumin, creatinine, cholesterol, haemoglobin, haematocrit)



Figure 1: Accumulation of calculus on labial surface of maxillary and mandibular teeth



Figure 2: Removal of calculus from labial surface of maxillary and mandibular teeth



Figure 3: Accumulation of calculus on labial surface of maxillary and mandibular teeth



Figure 4: Accumulation of calculus on lingual surface of mandibular teeth



Figure 5: Removal of calculus from lingual surface of maxillary and mandibular teeth

After selection of case based on the inclusion & exclusion criteria, the assessment of oral hygiene status, gingival status, mucosal status serum albumin levels and laboratory blood test were done.

3. Results

This study was conducted to assess the periodontal status of 20 patients suffering from Nephrotic syndrome between the age group of 20-50 years. The data was obtained from questionnaire and observation of periodontal index, gingival index and Simplified oral hygiene index and serum albumin level in nephritic patients.

IN OHI(S) - 50% (n=10) Patients had poor oral hygiene and 50% (n=10) patients had fair oral hygiene.

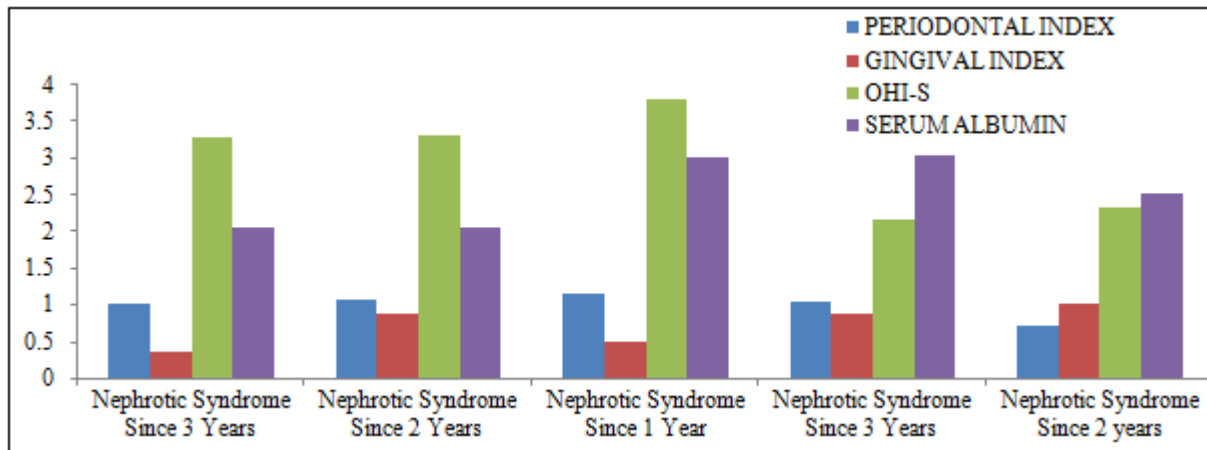
Gingival Index- Mild to moderate inflammation is used to assess the gingival index. 60% (12) patients had mild gingival inflammation and undergoing treatment since last 2 years, and 40% (8) patients had moderate gingival inflammation and undergoing treatment since last 1 year.

Periodontal Index- 70% (14) patients had mild gingivitis and 30% (6) patients had negative gingival score.

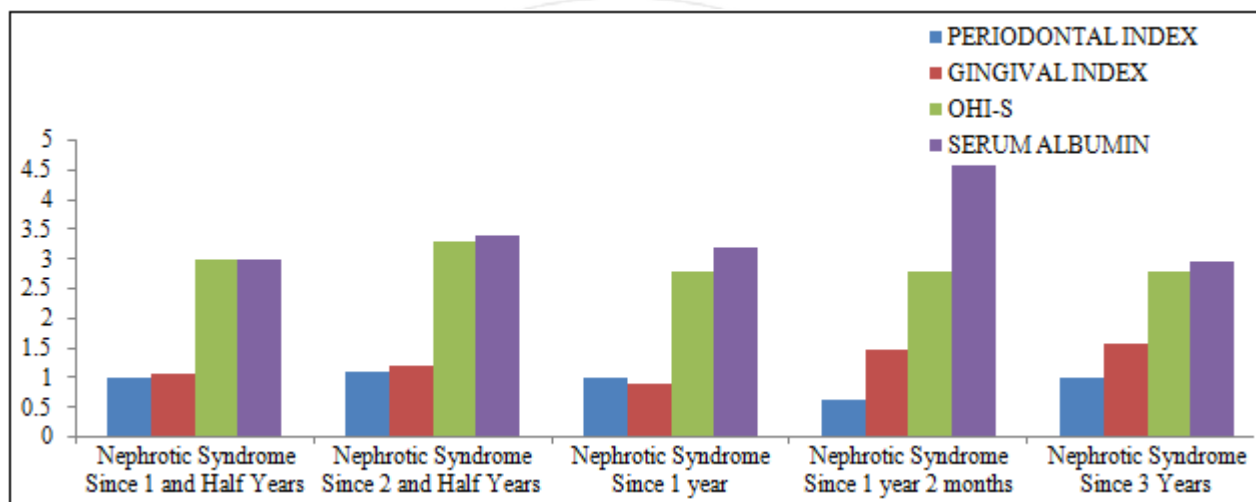
Serum Albumin

Values of serum albumin depends on various factors; one such factor is chronic inflammation seen in periodontitis. However in the present study we could not establish a co relation between gingival inflammation and serum albumin.

This could be due to their differences in the severity of Nephrotic Syndrome.



Graph 1: Periodontal index, gingival index, OHS-S and serum albumin levels in Nephrotic Syndrome patients



Graph 2: Periodontal index, gingival index, OHS-S and serum albumin levels in Nephrotic Syndrome patients

4. Discussion

Nephrotic syndrome is one of the chronic illness.¹⁰ Many studies related to oral health status of chronic kidney disease have been reported but as per available data, there are no studies conducted regarding the oral health status of the patients suffering from Nephrotic Syndrome.

In the present study 20 patients above the age of 20 years were included in the study. This is comparable to study conducted by N S Venkatesh Babu and Sinjana Jana.¹⁰ In the present study 50% patients had poor oral hygiene and 50% patients had poor oral hygiene.

Several authors like Dorota O Kowalczyk et al has not assessed previously, Gingival status in patients with NS. The observation of patients with kidney or liver transplants that are under immunosuppressive treatments indicated a correlation between gingivitis severity and GI.¹¹

Severity of gingivitis was correlated with PLI, age and yeast enzyme activity in NS and immunosuppressive treatment with > 1 drug doses, treatment duration, lipid disorders, and BMI.⁴ Poor oral hygiene control is the main cause of gingivitis. Gingivitis severity is the most likely related to

age, lipid disorders and increase in body mass. In patients with chronic nephrotic syndrome, alterations of the cellular immunity and malnutrition due to adherence to a protein-restricted diet lead to immunodeficiency. These patients are susceptible to bacterial infection and have a diminished ability to produce antibodies. Oral diseases create bacteremia, which may lead to morbidity and potential mortality in patients with renal failure or on dialysis. Carious teeth, oral ulcers, plaque, and calculus can be points of entry for microorganisms into the bloodstream. Antibiotic prophylaxis, typically with vancomycin, has been recommended before invasive dental procedures although this recommendation is contrary to guidelines of the British Society for Antimicrobial Chemotherapy. Klassen and Krasko (2002) have stated that good oral health lowers the risk of oral infection and, subsequently, the risk of septicemia, endocarditis, or enteritis at the site of vascular dialysis access.³

Ertugrul, Cigdem Elbek-Cubukcu,¹² Yahya B, Bayramy Ali¹³, Khadija Herwis and Kumar Raghav¹⁴ in their studies asked participants about oral hygiene practices and found oral hygiene to be an extremely neglected issue among these patients who belongs to a low socioeconomic background mainly due to their strict treatment routine.

5. Conclusion

The present study was undertaken to assess the periodontal status in patients suffering from NS. Poor and fair simplified oral hygiene, moderate gingival inflammation, mild gingivitis were found in Nephrotic Syndrome patients undergoing strict treatment. The signs and symptoms of NS can be observed in the oral cavity. Early diagnosis and prompt treatment of oral diseases are mandatory and will minimize the need for extensive dental care. Patients and guardians should be informed about the role of oral hygiene in reducing the risks of oral infections.

References

- [1] Greenberg MS, Glick M, Ship JA. *Burkets Oral Medicine Diagnosis and treatment*, BC Decker Inc Hamilton, 11th ed; 2008
- [2] Picken M. *Atlas of renal pathology*. Arch Patho Lab Med 2000;124:927
- [3] Gupta Megha, Gupta Mridul, Abhishek. *The Saudi Dental J* 2015;27(3):113-119
- [4] B.Seraj, R. Ahmed, N. Ramezani, A. Mashayekhi, M. Ahmadi, *Oro-Dental Health Status and Salivary Characteristics in Children with Chronic Renal Failure*. *Journal of Dentistry*;2011;8(3):146-51
- [5] Paazzi DL, Campell JR(2011) *Acute Cystitis in children older than two years and adolescents*.
- [6] Bliznakova D (2010) *Pediatrics for Dental Medicine Students* (227-272).
- [7] Herold, Gerd. *Internal Medicine*. Ch.11. Sofia, MI," Sharov", 2011,
- [8] Meyrier A (2016) *Acute Kidney injury (acute renal failure) in minimal change disease and other forms of nephritic syndrome*.
- [9] Ivanov, Ivan (2005) *internal disease. Comments or one practical approach for their diagnostics and treatment*. Sofia- Moskva, Pensoft 221-296.
- [10] N S Venkatesh Babu, Sinjana Jana .*Assessment of oral health status in children suffering from Nephrotic Syndrome*. *Int j Sci Stud*. 2014;2(2):19-23
- [11] Olczak-Kowalczyk et al. *BMC Oral Health* (2015) 15;57
- [12] Fahinur Ertuđrul, Çiđdem Elbek-Çubukçu, Ertuđrul Sabah, Sevgi Mir.*The oral health status of children undergoing hemodialysis treatment*. *The Turkish Journal of Pediatrics*. 2003 (45): 108-113.
- [13] Nakhjavani Yahya B, Bayramy Ali. *The dental and oral status of children with chronic renal failure*. *J Indian Soc of Pedod Prev Dent* 2007;25 (1):7-9.
- [14] Khadija Herwis, Kumar Raghav. *Oral health status of children undergoing haemodialysis in El-Fateh children Hospital Benghazi-A Cross-sectional study*. *Cairo Dental Journal*. 2008 (3):429-436.