

Dental Management In Patients With Chronic Renal Failure And End Stage Renal Disease- A Review

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ABSTRACT

Chronic renal failure has become a very important health care modality in recent times and the incidence is already increasing mainly in the industrialized areas where physical, social, environmental, dietary factors play a major role. Renal failure as a disease shows different oral manifestations at different stages of the disease. This article is a review of the several factors in management of a dental patient with chronic renal failure (CRF), End Stage Renal Disease (ESRD).

KEYWORDS: *Renal manifestation , Dental lesions , Chronic renal failure*

INTRODUCTION

The foremost Renal condition that a dentist will face is Chronic Renal Failure (CRF), followed by Nephrotic syndrome and in a few cases patients who have undergone a renal transplant. The prevalence of chronic renal diseases in this modern world is much higher than what it used to be, though the treatment modalities have been way better than the past, there has been an increase in the incidence of the disease. Renal diseases show systemic and oral manifestations as well. The oral symptoms can be in both Hard and Soft tissues. Regarding the dental pathology, there can be Dentinal hypersensitivity (DH), Mobility of teeth, Periodontal pockets, Pain on chewing, Sensitivity to Thermal stimuli, Generalized loss of insertion, Furcation lesions, Gross gingival swelling, Bleeding of gingiva, Xerostomia and heavy plaque and calculus deposits.

DISCUSSION

Chronic renal failure (CRF) is defined as a progressive decline in renal function, which is associated with a reduced glomerular filtration rate (GFR, measured clinically by the creatinine clearance rate). The most common causes for CRF are diabetes mellitus, glomerulonephritis, and chronic hypertension. In older individuals, the most commonly diagnosed causes of CRF are renovascular disease and diabetes mellitus, although other causes include polycystic kidney disease and pyelonephritis (Ansell and Feest, 2002; McDonald and Russ, 2002; US Renal Data System, 2002). Because of its irreversible and progressive nature, the evolution to End stage renal disease occurs where glomerular filtration rate is around 5-10% and there is a high level of uremia. These are signals and symptoms derived from physiological and biochemical abnormalities of serious renal failure. Chronic renal disease is associated with multiple complications that are influenced by its etiology. Patients with ESRD also present a lot of haemopoietic features like anemia and hemostasis problems. Anemia being a multifactorial disease is mainly caused by erythropoietic dysfunctions resulting from renal failure. Changes are also seen in leukocyte production, mainly associated with lymphocytopenia. Uremia suppresses the lymphocytic response, results in dysfunction of granulocytes and suppression of cell-mediated immunity. These alterations place uremic patients at a higher risk for infection. Hemostasis problems are usually seen in chronic renal failure patients due to abnormal platelet aggregation and adhesion (Von Willebrand factor defect), also decrease of platelet factor III and

altered prothrombin metabolism. Haemostasis is impaired to varying degrees in patients with CRF and enquiry regarding any bleeding tendency should be made. The main factors involved are impaired platelet adhesiveness, decreased von Willebrand's factor and decreased thromboxane. Prostacyclin levels are raised leading to vasodilatation. The bleeding time is often prolonged. In addition, patients who are being dialysed will be heparinised during dialysis. However, as the effects of heparin are not prolonged, treatment performed on a day when the patient is not being dialysed presents no problem with drug-induced anticoagulation. It is important to ask the patient that when have they started dialysis because the treatment will be best immediately after dialysis. Haemodialysis can be carried out in the body (peritoneal) or outside the body (extra-corporeal). Both types depend on the patient's blood being exposed to a solution hypotonic in metabolites across a semi-permeable membrane. Extra-corporeal dialysis depends on a high flow of blood from the patient's body to the dialysis machine and then back to the patient. The dialysis team produces a peripheral arterio-venous fistula for regular large vessel diameter access. It is of utmost importance that the fistula should be in proper condition and is not to be used for any other purpose. Any damage to the area can cause a torrential hemorrhage. Peritoneal dialysis, uses the patient's peritoneal membrane as the semi-permeable barrier. The dialysing fluid is introduced into peritoneal cavity, left in-situ which then is drained as an effluent. Any Infection of the peritoneal catheter is a potential complication resulting in peritonitis. It is important to consider the usage of prophylactic antibiotics for any dental procedure that may cause a bacteremia. In dental management with end stage renal failure patients is advised to carry out in a theatre environment with immediate medical support being available. The pre-dialysis patients are a particular challenge as they undergo a phase of transition towards dependency on dialysis. This brings out changes in the life patterns, possibly worsening of symptoms and an impaired ability to function. Dental problems are not high priority for these patients unless there is severe pain. Nephrotoxic and non-steroidal anti-inflammatory drugs should not be advised in pre-dialysis patients. This includes COX-2 inhibitors. The use of paracetamol and local anaesthetic solution is usually safe. Mepridine is not advised as it can result in seizures in CKD patients due to the accumulation of toxic metabolites. Antibiotics are usually considered safe, as long as dose adjustment is done based on the degree of renal dysfunction according to GFR and solutions containing potassium salts are not given. Hypertension is also very common at this stage and often given in a combination of three to five anti-hypertensive drugs so as to control blood pressure. Patients are advised to take their morning medication prior to the dental procedure.

CONCLUSION

Patients with renal failure usually pose a complex medical history and with specific problems in dental management. Many patients with mild renal disease are treated without any difficulty in general dental practice but, patients in advanced stages of renal failure and co-morbidity are more suitable for the treatment in theatre environment with special care. In these patients, the dosage of drugs needs to be adjusted based on the residual kidney function, while other drugs, like the NSAIDs, should be avoided completely. The risk of endocarditis is also quite increased compared to the general population, though there are no specific guidelines for these patients don't exist. Dialysis patients may pose specific problems to the dentist and close liaison between renal and the dental team is advised. Before any dental treatment begins, it is necessary that a risk assessment of renal patients is undertaken, which results in identification of specific problems and leading to discussion with the nephrology team. This will further enhance the patient experience and decrease the risk of any possible complications.

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