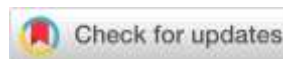
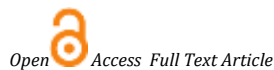


Available online on 15.04.2023 at <http://jddtonline.info>

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

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Case Report

Role of Erythropoietin in Pre-Renal Transplant Patients Undergoing Oral Surgical Procedures-Two Case Reports

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Article Info:

Abstract



Article History:

Received 11 Feb 2023
Reviewed 08 March 2023
Accepted 15 March 2023
Published 15 April 2023

Cite this article as:

Srilakshmi T, Murthy V VR, Role of Erythropoietin In Pre-Renal Transplant Patients Undergoing Oral Surgical Procedures-Two Case Reports, Journal of Drug Delivery and Therapeutics. 2023; 13(4):1-2

DOI: <http://dx.doi.org/10.22270/jddt.v13i4.5774>

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The Oral Cavity Is Often Called The "Gateway To The Body," Dentist As The "Gatekeepers Of Health." Chronic Kidney Disease Is An Emerging Disease With Increased Mortality In A Low Resource Setting, According To The Global Disease Burden Report (2015)¹ Lack Of Infrastructure And Awareness Among The Public Is Diagnosed At A Late Stage, Leading To Increased Mortality. In A Parallel Line, Dentistry In Developing Countries Still Is An Alien Entity To The Rural And Suburban Areas. End-Stage Renal Failure Patients Who Were Advised For Renal Transplants Visit The Dentist With Poor Oral Hygiene And Foci Of Infection, Which Must Be Eliminated. Anemia In End Stage Renal Disease And Its Management Is Challenging For The Clinicians With The Lack Of Erythropoietin Hormone Exposes The Patients To Risk Of Fatigue, Breathlessness, Lower Quality Of Life And Blood Transfusion^{2, 3}. From Early 1980's Erythropoiesis Stimulating Agents Were Used In Kidney Damaged Patients Undergoing Dialysis But Their Application In Oral Maxillofacial Surgery Was Scarce To Minimize Morbidity And To Avoid Blood Transfusion⁴⁻⁶.

Keywords: Oral Cavity, Chronic Kidney Disease, Dentistry, Oral Hygiene

INTRODUCTION:

The Oral Cavity Is Often Called the "Gateway To The Body," Dentist As The "Gatekeepers Of Health." Chronic Kidney Disease Is An Emerging Disease With Increased Mortality In A Low Resource Setting, According To The Global Disease Burden Report (2015)¹ Lack Of Infrastructure And Awareness Among The Public Is Diagnosed At A Late Stage, Leading To Increased Mortality. In A Parallel Line, Dentistry In Developing Countries Still Is An Alien Entity To The Rural And Suburban Areas. End-Stage Renal Failure Patients Who Were Advised For Renal Transplants Visit The Dentist With Poor Oral Hygiene And Foci Of Infection, Which Must Be Eliminated. Anemia In End Stage Renal Disease And Its Management Is Challenging For The Clinicians With The Lack Of Erythropoietin Hormone Exposes The Patients To Risk Of Fatigue, Breathlessness, Lower Quality Of Life And Blood Transfusion^{2, 3}. From Early 1980's Erythropoiesis Stimulating Agents Were Used In Kidney Damaged Patients Undergoing Dialysis But Their Application In Oral Maxillofacial Surgery Was Scarce To Minimize Morbidity And To Avoid Blood Transfusion⁴⁻⁶.

CASE 1:

A 52-Year-Old Male Patient Presented With Hypertension Of 180/100 Mmhg, Signs Of Increased Urination, And Pedal Edema To The Nephrologist. He Also Has A History Of Type-2

Diabetes For Ten Years And Hypertension For Six Years. On Examination, Signs Of Diabetic Nephropathy And Retinopathy Were Present. His Laboratory Investigations Showed Abnormal Electrolytes, Increased Serum Urea, Creatinine Levels With Hemoglobin Level At 7gm%, Creatinine Levels At 12.7 Mg/Dl, Blood Urea At 169mg/Dl With Albuminuria. It Was Diagnosed With Chronic Kidney Disease Stage-5 without Azotemia Symptoms And Planned For Kidney Transplantation. The Patient Was Referred For Dental Clearance And Fitness For Surgery.

The Oral And Maxillofacial Review Screening Was Done To Manage Chronic Generalized Periodontitis Which Was Indicated For Full Mouth Extraction. The Treatment Plan Was Discussed Both With The Patient And Nephrologist Regarding Intraoperative, Postoperative Healing Period, Time For Intervention, Medication. Erythropoietin 5000iu Was Injected Subcutaneously Once In 5 Days For 3weeks. After Hemoglobin Levels Of 12 Gm% Was Attained, Surgical Extractions Performed Successfully.

CASE 2:

A 42-Year-Old Male Patient Presented With A Hypertensive Emergency To The Department Of Nephrology. Known History Of Hypertension From 8years And Diabetes From 2 Years With Signs And Symptoms Of Pedal Edema Bilaterally With Severe Albuminuria. Diagnosis Of Chronic Kidney Disease Stage 5

With An Indication For Nephrectomy For Kidney Transplantation Was Referred For Removal Of Periodontally Compromised Teeth Before Kidney Transplantation. The Hemoglobin Levels Of The Patient Were 8.2gm/Dl. Injection Of Erythropoietin 5000iu, Sc Once In 5 Days For Two Weeks Improved Hemoglobin Level. The Surgical Procedure Was Carried Out And Managed Without Any Complications, And Later On, Organ Transplantation Was Done After Three Weeks.

DISCUSSION:

There Is Increased Mortality In Patients With Chronic Kidney Disease Having Poor Oral Hygiene. A Study Done By Sentonia C Palmer⁷ Increased Cardiovascular Mortality In Patients With Chronic Kidney Disease Having Poor Oral Hygiene. There Was More Prolonged Survival In Hemodialysis Patients Following Oral Hygiene Practices. Patients With Chronic Kidney Disease Often Need A Dental Referral To Eliminate Active Infectious Foci, Including Extraction Of Grossly Decayed Teeth/Teeth With Periapical Pathology. These Patients Often Present To Us With Decreased Glomerular Filtration Rate, Elevated Creatinine Levels, And Albuminuria. They Also Present With Anemia (Hb<7), A Concern before Proceeding for Dental Surgeries. Reduced Erythropoietin (Produced By The Kidney) Leads To Anemia That Can Cause Relative Hemodilution And Unwanted Bleeding⁸. Due To Anemia And Alteration In Platelet Aggregation, There Is An Increased Risk Of Hemorrhage.

Erythropoietin, As A Hemopoietic Agent In Patients With Chronic Kidney Disease, Was Documented In The Literature⁹. According To A Study Done By Carsten Lundby Et Al¹⁰⁻¹¹, Erythropoietin Induces An Elevation In Hb Level By Two Mechanisms I) An Increase In Red Cell Volume Ii) A Decrease In Plasma Volume, Hypothesized To Be Mediated By Downregulation Of The Renin-Angiotensin-Aldosterone Axis. In Dental Clinic Settings, Treating Chronic Kidney Disease, Erythropoietin Plays A Vital Role As A Hemostatic Agent. Epoetin Alfa Transiently Increases The Number Of Circulating Platelets, Thereby Improves Platelet Function And Return Of The Bleeding Time Towards Normal⁶. Improvements In Platelet Aggregation Were Associated With Improvement In The Bleeding Time. Injection Of Erythropoietin 5000iu (Sc) Once In 5 Days For 3weeks Helped Increase The Hemoglobin By More Than 70 Percent. There Was Less Intraoperative Bleeding During The Dental Extraction And Managed By Local Hemostatic Measures. There Were Also No Reports Of Postoperative Hemorrhage.

CONCLUSION:

Use Of Erythropoietin In Patients Undergoing Minor Oral Surgical Procedures With Chronic Kidney Disease Benefits The Outcome And Minimizes Risk Of Both Intraoperative And

Postoperative Hemorrhage And Opens Scope For New Research In Oral And Maxillofacial Surgery. There Is Need For Randomized Clinical Trials To Explore Its Use In Oral And Maxillofacial Surgery As A Routine Practice In Chronic Kidney Disease Patients.

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