Kidney Failure and Kidney Transplantation

Prohibited Substances: Erythropoietin stimulating agents, glucocorticoids, diuretics, and beta-blockers

1. Medical Condition

The aetiology of the kidney failure necessitating transplantation must be well documented with confirmation by the attending surgeon or nephrologist. Although uncommon in elite athletes, recent cases of kidney transplantation in high-profile athletes have been reported.

2. Diagnosis

The diagnosis of kidney failure must be accompanied by an appropriate history of documented decline in renal function confirmed by a nephrologist.

It is necessary to provide the history of declining kidney function and associated evidence that the criteria for kidney transplantation have been met. This may be provided by the family physician with appropriate endorsement from a nephrologist.

3. Treatment

In the management of kidney failure and/or post-transplant patients, it is possible that combination therapy may be required including the use of:

- Glucocorticoids (GCs)
- Beta-Blockers
- Diuretics
- Erythropoietin (EPO) or agents stimulating EPO release (ESA in different forms such CERA and pergylated forms
- Oral inhibitors of Hypoxic-inducible Factor (HIF) 1 alpha prolyl hydroxylase

4. Route of administration

All agents should be administered orally except for erythropoietin stimulating agents (ESA) which are administered intravenously or by subcutaneous injection.

5. Frequency of administration

Daily doses of GCs (5-10mg daily for maintenance), beta-blockers, diuretics and ESAs in accordance with current guidelines (see references). For ESAs the current guidelines recommend a target haemoglobin of up to 120g/L. ESAs should not be prescribed or continued if hemoglobin is greater than 120g/L.

6. Recommended duration of treatment

The treatment is life-long with recommended annual review by a nephrologist.

7. Other non-prohibited alternative treatments

Following kidney transplantation, there is no other appropriate, non-prohibited treatment available.

For kidney failure, it is likely that the prohibited treatments may also be necessary.

8. Consequences to health if treatment is withheld

Given that the criteria for kidney transplantation have been met, the consequences of withholding prescribed treatment from these individuals will impact significantly upon the function of the transplanted kidney as well as the health of that individual. This applies to immunosuppressive therapy (GCs) and cardiovascular medications (including Beta-blockers).

Most kidney transplant recipients will present a history of hypertension secondary to chronic kidney disease. Untreated, hypertension appears to be linked to reduced long-term graft and patient survival. Thus, anti-hypertensive therapy, including diuretics, where indicated is essential.

In cases where moderate graft impairment is confirmed, patients may require ESA supplementation due to reduced EPO production. ESA therapy is indicated as per guidelines for the management of anaemia associated with chronic kidney disease.

9. Treatment monitoring

Routine assessment of kidney function including monitoring of blood pressure will be at the discretion of the nephrologist. Haematological and biochemical parameters are routinely measured, so a record of values are readily available to detect any unexpected changes. As noted previously, ESAs should not be prescribed or continued when hemoglobin values are greater than 120 g/L.

10. TUE validity and recommended review process

Lifetime therapy in accordance with clinical status and an annual review is acceptable. Any changes to the therapeutic regime involving prohibited agents should be well documented and endorsed by a nephrologist and form the basis of a revised TUE.

At annual review, athletes treated with ESAs should have blood tests including hemoglobin, hematocrit, red blood cell count, reticulocyte count. Values for these parameters over the preceding 12 months should be provided to detect any unexpected changes.

The recommended validity of a TUE for a case of kidney failure or kidney transplantation is 10 years, with an annual review required to revalidate, as described above.

11. Any appropriate cautionary matters

Kidney failure and transplantation in elite athletes are not a common occurrence. However, there are documented contemporary cases and the consistent application of good practice guidelines is essential.

References

1. 2003 European Society of Hypertension- European Society of Cardiology New Guidelines for treatment of Hypertension J Hypertens. 2003 Jun; 21(6):1011-53

2. KDOQI clinical practice guidelines for chronic kidney disease: Evaluation, classification, and stratification. Kidney Disease Outcome Quality Initiative. Am J
Kidney Dis 39: S1-S266, 2002 (suppl 2)

3. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Roccella EJ: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 report. JAMA 289:2560-2572, 2003

4. Drueke TB, Parfrey PS. Summary of the KDIGO guideline on anemia and comment: reading between the (guide) line (s). Kidney International 2012; 82:952-960

5. Gupta N, Wish JB. Hypoxia-Inducible Factor Prolyl Hydroxylase Inhibitors: A Potential New Treatment for Anemia in Patients With CKD. Am J Kidney Dis. 2017 Jun;69(6):815–26.

6. Kidney Disease: Improving Global Outcomes (KDIGO) Anemia Work Group. KDIGO Clinical Practice Guideline for Anemia in Chronic Kidney Disease. Kidney inter., Suppl. 2012; 2: 279–335.

7. N. Chen, C. Hao, X. Peng, H. Lin, A. Yin, L. Hao, Y. Tao, X. Liang, Z. Liu, C. Xing, J. Chen, L. Luo, L. Zuo, Y. Liao, B.-C. Liu, R. Leong, C. Wang, C. Liu, T. Neff, L. Szczech, and K.-H.P. Yu. Roxadustat for Anemia in Patients with Kidney Disease Not Receiving Dialysis. NEJM 2019; 381 (11): 101-1010.