

# Case Study: The use of Renastart™ in a 2 year old child with renal dysplasia and persistent hyperkalaemia

Written by a Paediatric Renal Dietitian, Specialist Paediatric Renal Centre, Belgium



## Patient Details & Medical History

**Age:**  
2 years, 3 months

**Gender:** 

**Diagnosis:**  
Posterior urethral valves and bilateral kidney dysplasia.

This child was known to the renal team from birth due to renal dysplasia and posterior urethral valves. At birth he had a slightly decreased glomerular filtration rate (GFR) but normal serum electrolyte levels. He started on solid food at the age of 4 months. At 1 year of age he was eating but refusing his follow on milk and water. He had poor growth due to high salt losses, an inability to concentrate urine and he was not meeting his nutritional requirements due to refusing his milk. Therefore, a gastrostomy was inserted to meet his nutritional requirements (including his sodium and fluid requirements). By 2 years of age he developed persistent hyperkalaemia. A low potassium diet was initiated but after several months his serum potassium levels were still high.

### Biochemistry:

K <sup>+</sup> (mmol/l)	PO <sub>4</sub> (mg/dl)	Urea (mg/dl)	Creatinine (mg/dl)	GFR (ml/min)
<b>5.3</b>	<b>1.86</b>	<b>94</b>	<b>0.75</b>	<b>62</b>
Ref Range (3.6-4.8)*	Ref Range (1.03-2.09)*	Ref Range (12-48)*	Ref Range (0.17-0.42)*	



## Dietetic Assessment at first intervention

**Weight (Kg):**  
11.8

**Height (cm):**  
84.5

### Percentile on the growth chart:

Weight: 16th percentile  
Height: 7th percentile

### Current Dietary intake:

**Breakfast:** 2 slices of bread (white or brown) with a vegetable based margarine and preserve plus 35.8 g follow on formula and 240 ml water.

**Snack:** Plain biscuit and 1 piece of a low potassium fruit.

**Lunch:** 120 g of potatoes (4 times per week) or rice/pasta and 150 g vegetables (low potassium options) and 50 g of meat or fish. 15 ml of vegetable based oil or margarine.

**Dinner:** 2 slices of bread (white or brown) with a vegetable based margarine and preserve plus 35.8 g follow on formula and 240 ml water.

### Nutritional intake:

Energy	Protein	K	P	Na
1318 kcal 112 kcal/kg	40.5 g 3.43 g/kg	1755 mg 3.8 mmol/kg	841 mg 71.3 mg/kg	1050 mg 3.9 mmol/kg

### Calculation of nutritional requirements:

**Energy:**  
78-82 kcal/kg/day

**Protein:**  
1.1 g/kg/day

**Fluid:**  
1100 ml/day

**Potassium:**  
Restriction due to raised serum potassium

### Relevant medications:

Medication	Reason for use
Sodium bicarbonate	Metabolic acidosis
Colecalciferol and Alphacalcidol	Active Vitamin D supplements



## Aim and plan of management

### Dietary management:

The child was due to start preschool soon and his mum wanted him to have lunch at school. Therefore, it was agreed to lower the potassium content of the diet by partially replacing some of the follow on formula with Renastart™.

### Feeding plan:

Partial replacement of follow on formula with Renastart:

- Breakfast:** 2 slices of bread (white or brown) with a vegetable based margarine and preserve plus 17.9 g follow on formula, 28 g Renastart and 240 ml water.
- Snack:** Plain biscuit and 1 piece of a low potassium fruit.
- Lunch:** 120 g of potatoes (4 times per week) or rice/pasta and 150 g vegetables (low potassium options) and 50 g of meat or fish. 15 ml of vegetable based oil or margarine.
- Dinner:** 2 slices of bread (white or brown) with a vegetable based margarine and preserve plus 17.9 g follow on formula, 28 g Renastart and 240 ml water.

### Nutritional intake:

Energy	Protein	K	P	Na
1400 kcal 120 kcal/kg	41 g 3.50 g/kg	1622 mg 3.5 mmol/kg	764 mg 60.2mg/kg	1123 mg 4.2 mmol/kg

### Biochemistry after dietetic intervention:

K <sup>+</sup> (mmol/l)	PO <sub>4</sub> (mg/dl)	Urea (mg/dl)	Creatinine (mg/dl)	GFR (ml/min)
<b>4.6</b> Ref Range (3.6-4.8)*	<b>1.50</b> Ref Range (1.03-2.09)*	<b>43</b> Ref Range (12-48)*	<b>0.71</b> Ref Range (0.17-0.42)*	<b>66</b>

### Weight (Kg):

12.7

### Height (cm):

85.3

### Percentile on the growth chart:

Weight: 26th percentile  
Height: 3rd percentile



## Outcome

Serum potassium levels decreased to be within the hospital reference range. Appropriate growth continued.



## Take Home Messages

Renastart can be used to provide additional energy, protein, vitamins and minerals in conjunction with an oral diet to enable potassium intake to be reduced. By using Renastart, a more liberal oral diet can be encouraged which is important with regards to establishing positive oral experiences in this patient group.

\* Hospital reference ranges.

### Reference

1. Royle, J. Chapter 12: Kidney Disease. In: Shaw V, editor. Clinical Paediatric Dietetics. 4: John Wiley & Sons Ltd.; 2015. p. 242-81.



A Nestlé Health Science Company

The VitaFlo logo is a trademark of Société des Produits Nestlé S.A.  
©2021 All rights reserved. Société des Produits Nestlé S.A

All information correct at the time of print

### This information is intended for use by Healthcare Professionals only.

Renastart is a Food for Special Medical Purposes. Must be used under strict medical supervision with regular monitoring of nutritional status and electrolyte levels. For enteral use only. Not suitable as a sole source of nutrition.

VitaFlo International Ltd, Suite 1.11, South Harrington Building,  
182 Sefton Street, Brunswick Business Park, Liverpool, L3 4BQ, UK.

Tel: +44 (0)151 702 4937 www.vitafloweb.com

RCS2-0618-V2  
March 2021