Abstract 52° ERA-EDTA Congress 2015

Phosphorus in Chronic Kidney Disease (CKD) patients : from 1669 to 2014

Vincenzo Savica, Guido Bellinghieri, Giovanni Duro, Domenico Santoro
Biomedicine and Molecular Immunology Institute National Reasearch Council Palermo, Papardo Hospital, Department of Clinical and Experimental Medicine, University of Messina, Italy*

Summary

The actual history of phosphorus in Nephrology began in 1669 when alchemist H.Brandt obtained 120 grams of white powder distilling 5500 liters of horses urine. He was impressed during a dark night by the light coming out ampoules containing the powder (Figure 1).

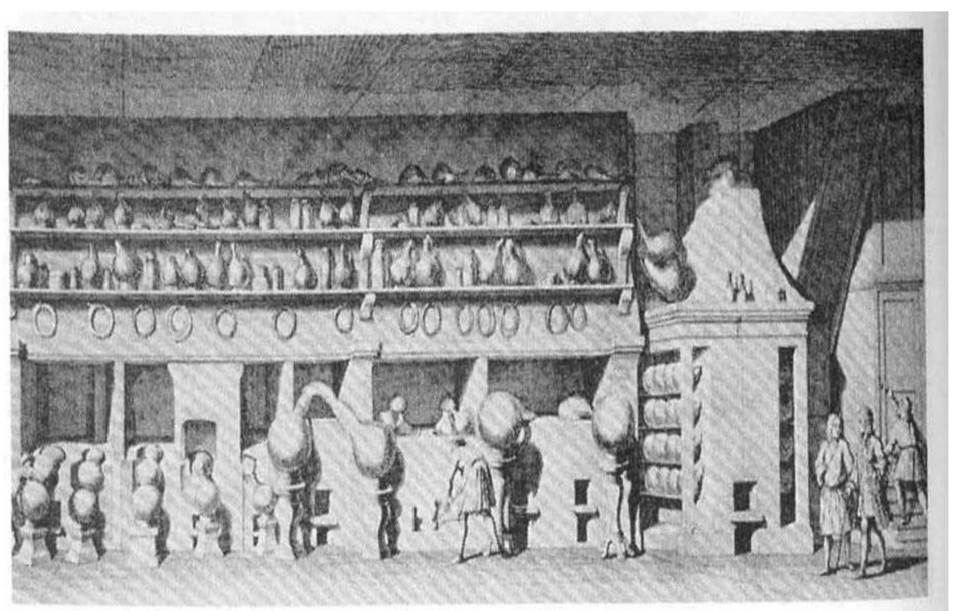
Figure 1

Ambrose Godfrey (1660–1741).

Figure 2a

This was the first link between kidney and phosphorus and it was interpreted as philosopher's stone. bsequently A.Godfrey (Figure 2a and 2b), D.Kraft and J. Kunkel (Figure 3) along with Brandt , began to make advantage of the properties of phosphorus,light production and self ignition.

Figure 3



Apparatus for the preparation of phosphorus, Ambrose Godfrey's phosphorus factory c.1720.

Figure 2b

In 1719 T.Hensing associated phosphorus in the brain and concluded that phosphorus was related to mental ability.
In 1769, JG. Gahn showed that bones contained calcium phosphate; the relationhip between bones and kidney was start to be noted.
In 1868 F. Miescher and in 1962 JD. Watson and F.Crick detected a phosphorus as critical component in cells DNA.
Today the importance of phosphorus is well defined as cardiovascular promoter both in CKD patients and in patients free of renal disease.
It is a key element in trasforming arterial smooth muscle cell in "bone " cell throught molecular mechanism.

DOI: 10.3252/pso.eu.52era.2015