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Sommario/riassunto

The title follows from the original demonstration by Dr. Hugh de Wardener in 1961 that a humoral agent is produced after extracellular volume expansion which results in a vigorous diuresis and natriuresis. Thus the name of "natriuretic hormone" was coined. In the years that followed several investigators pursued the search for the hormone. What resulted, however, was the discovery of several hormones with different characteristics, all of which were natriuretic. Initially it was found that the hormone was similar in action to ouabain or digoxin, hence the appelation of ouabain-like or digoxin-like. The hormone was found to be an inhibitor of Na-K-ATPase, which would fit with it being a cardiotonic steroid. On the other hand, neither ouabain or digoxin migrated on Sephadex gel filtration in the same locus as the hormone. Other investigators claim to have identified the hormone-initially as a vanadium-diascorbate, later as bufadienolides such as marinobufagenin, yet later as a macrocylic derivative of inorganic carbon suboxide with a molecular weight of 408 Da. Some support for the latter finding was derived from an earlier report that a semi-purified Sephadex-derived compound was found to have a molecular weight of about 12,000 Da but the active compound, when split from its carrier protein, had a molecular weight of exactly 408 Da. This compound had not been further identified. As further development was the demonstration by Bricker and colleagues that a natriuretic substance could be purified from uremic urine. This turned out to be a

xathurenic acid derivative. Meanwhile the focus began to turn to natriuretic peptides derived from heart (ANF and BNP). These peptides have a shorter duration of action than the cardiotonic steroid-like hormone and ANF has proved to be most useful as a measure of heart failure. It should also be stressed that marinobufagenin, like ANF, is elevated in congestive heart failure, whereas the steroid-like hormone is depressed or absent in this state. This review will attempt to describe and contrast the properties of each of the proposed natriuretic hormones, including their locus on Sephadex separation, potency, duration of action, chemical structure (if known), behavior in hypertension, renal failure, heart failure, and brain disease. As most recent work has focussed on marinobufagenin, this hormone will be brought up to date by investigators in the field.