Collated

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Janos Radó: Addition to final comment

Calcitonin in lithium-induced nephrogenic diabetes insipidus

Barry Blackwell: The lithium controversy. A historical autopsy

In our previous studies the favorable antidiuretic action of Desmopresssin was counteracted by the concomittant administration of Calcitonine in Lithium-induced permanent nephrogenic diabetes insipidus (Radó 2018). However, the exact mechanism of the abolishment of Desmopressin-induced antidiuresis by Calcitonine was not clear. As the opinions in the literature are rather divided concerning the basic water metabolic action of Calcitonine, further considerations may have significance.

Calcitonine is a *"tricky"* hormone, having both diuretic and antidiuretic properties. *Diuretic effect* of Calcitonine was an observation mainly in the older literature (Carney, and Thompson 1981; Keeler, Walker and Copp 1970) and is in harmony with our published data on a water mobilizing action (Radó 1991, 1993, 2018). On the other hand, *a water retaining action* was found by the de Rouffignac group (Elalouf, Roinel and de Rouffignac 1986**)** in response to *human* Calcitonine in *rats* during micropunture studies *simulating* the changes induced by Desmopressin. The results of these investigations were later confirmed by elegant sophisticated methods (Bouley 2011) *indicating that Calcitonine has a vasopressin-like action, indeed.* Calcitonine was even recommended - though purely on theoratical basis - for the treatment of nephrogenic diabetes insipidus, i.e., in a vasopressin resistant condition (Bouley et al. 2011).

An alternative explanation to the complicated water effects of Calcitonine may be provided by supposing that both Desmopressin and Calcitonine have an effect on the same renal tubular site on the vasopressin (V2) receptor, but the effect of Calcitonine is weaker than that of Desmopressin. So, Calcitonine, by occupying the receptors, can have a competitive antagonism with the Desmopressin molecule. *Further studies are necessary to confirm or exclude the possible competitive antagonism beetwen Desmopressin and Calcitonine.*

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