Julie et al., J Gerontol Geriatr Res 2016, 5:1
DOI: 10.4172/2167-7182.1000264

Journal of Gerontology & Geriatric Research

Case Report Open Access

An Unusual Cause of Dehydration

Julie Thiry, Iaetitia Beernaert, El Kahi Christelle, Valerie Martinet, Sophie Allegre, Jean-Philippe Praet and Thierry Pepersack*

Centre Hospitalier Universitaire Saint Pierre, Service de Gériatrie, Université Libre de Bruxelles, Brussels, Belgium

Case Report

A 61 years old institutionalized man was admitted for confusion. A diagnosis of aspiration pneumonia associated with hypernatremic dehydration was proposed upon admission. Medical history was characterized by bipolar psychosis, and « potomania » was described by the team the institution. The patient was treated with Lithium (Li) since more than 30 years.

After rehydration the urinary catheter explode ! We observed a massive polyuria (>4 L/24 h). Table 1 illustrates biochemical characteristics during hospitalization : upon admission (day 1) the patient presented two uncommon characteristics : (i) the absence of increased urines osmolality despite high serum osmolality; and : (ii) the absence of decreased serum parathormone (PTH) in the presence of hypercalcemia.

Serum Li was within the therapeutic range (1,1 mM/l).

Discussion

This case illustrates two complications of long-term lithium therapy : nephrogenic diabetes insipidus [1] and functional primary hyperparathyroidism [2]. These diagnosis were skipped by the team of the institution where the patient was tought to present « potomania », and where a water restriction was proposed. Pneumonia was the trigger of the decompensation of the hydromineral balance.

Days	1	8
Serum		
Urea [mg/dL]	40	19
Creatinin [mg/dL]	0,7	0,51
GFR [mL/min/1.73 m²]	>90	>90
Na [mmol/L]	156	138
Osmolality [mOsm/kg]	322	284
Ca [mmol/L]	2,54	2,19
Albumin [g/L]	31	30
Magnesium [mmol/L]	0,87	0,74
Phosphate [mmol/L]	0,63	1,12
PTH [ng/L]	43	28
25(OH)vitamin D [ng/mL]	12	
Urines		
Osmolality [mOsm/kg]	297	122
Na [mmol/L]	29	13
Ca/cr [mol/mol cr]	0,24	0,78

Table 1: Biochemical characteristics during hospitalization.

Nephrogenic diabetes insipidus is atributed to the competition of Li with the ADH receptors in the kidney. Lithium may also induce increased calcium reabsorbtion within the loop of Henle [3,4]. Concurrently, lithium can alter feedback mechanisms within the parathyroid gland, impeding the suppression of PTH normally produced by hypercalcemia [2]. In our case this latter disorder was slight since calcium levels normalized after rehydratation and the suppression of water restriction.

Conclusion

Lithium is associated with increased risk of reduced urinary concentrating ability and functional hyperparathyroidism. Although the presence of hypercalcemia and hypernatremia is often secondary to dehydration associated with increased water loss and decreased water intake in old patients with pneumonia, Li-related endocrine disorders should be sought in the presence of Li therapy [5].

References

1. Kishore BK, Carlson NG, Ecelbarger CM, Kohan DE, Müller CE, et al. (2015) Targeting renal purinergic signalling for the treatment of lithium-induced nephrogenic diabetes insipidus. Acta Physiol (Oxf) 214: 176-188.
2. Mallette LE, Khouri K, Zengotita H, Hollis BW, Malini S (1989) Lithium treatment increases intact and midregion parathyroid hormone and parathyroid volume. J Clin Endocrinol Metab 68: 654-660.
3. McKnight RF, Adida M, Budge K, Stockton S, Goodwin GM, et al. (2012) Lithium toxicity profile: a systematic review and meta-analysis. Lancet 379: 721-728.
4. Behl T, Kotwani A, Kaur I, Goel H (2015) Mechanisms of prolonged lithium therapy-induced nephrogenic diabetes insipidus. Eur J Pharmacol 755: 27-33.
5. Shine B, McKnight RF, Leaver L, Geddes JR (2015) Long-term effects of lithium on renal, thyroid, and parathyroid function: a retrospective analysis of laboratory data.Lancet 386: 461-468.

***Corresponding author:** Pepersack Thierry, Centre Hospitalier Universitaire Saint Pierre, Service de Gériatrie, Université Libre de Bruxelles, Brussels, Belgium, Tel: 3226502111; E-mail: tpepersa@ulb.ac.be

Received December 23, 2015; **Accepted** January 14, 2016; **Published** January 22, 2016

Citation: Thiry J, Beernaert L, El Kahi C, Martinet V, Allegre S, Praet JP, et al. (2016) An Unusual Cause of Dehydration. J Gerontol Geriatr Res 5: 264. doi:10.4172/2167-7182.1000264

Copyright: © 2016 Thiry J, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.