

## LETTER TO THE EDITOR

# Adequacy between practice and European guidelines on hyponatremia: a survey among French nephrologists

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Hyponatremia is the most common electrolyte disorder [1] and is associated with increased morbimortality [2]. Conversely, appropriate correction of hyponatremia is associated with improved prognosis [3]. Yet, available data disclose frequent persistence [4] or worsening of hyponatremia during hospital stays [5], pointing toward the complexity of adequate hyponatremia management. The 2014 European Guidelines on Hyponatremia (EGH) [6] by the ERA-EDTA and other societies aimed at simplifying the diagnostic and therapeutic approach in hyponatremia, but their impact on practice has not been evaluated. We assessed the knowledge and implementation of the EGH by French nephrologists and clinicians interested in hyponatremia 5 years after their publication, through a questionnaire around a clinical case and multiple-choice questions (Supplementary material). We invited members of the French Society of Nephrology, Dialysis and Transplantation (SFNDT) to answer the questionnaire, which was accessible online for 6 months

We collected 580 responses, of which we analyzed 407 complete questionnaires. Most participants (86%) were nephrologists. Respondents were interns (27%), junior (18%) and senior (31%) physicians in public hospitals, university professors (2.5%), private practitioners (15%) and salaried private physicians (7%). The mean score was 54.6% of the maximum (15.3/28 points, median 16/28 points, standard deviation 4.5 points).

For causal diagnosis of hyponatremia, most respondents (83%) request a sample urinary ionogram (Figure 1) as recommended by the EGH (grade 1D) for its better reproducibility than clinical volemia assessment [7]. Yet the interpretation of the urinary ionogram is often inaccurate, leading to a correct etiological diagnosis in only 52% of cases. We evaluated how hyponatremia

severity is assessed, with 71% of respondents correctly grading the severity as defined by the EGH. Concerning the syndrome of inappropriate antidiuresis (SIAD) we found an average of 57% correct diagnostic criteria identification by respondents, results consistent with a survey on SIAD among Italian nephrologists [8], confirming SIAD criteria remain unevenly known.

Concerning therapeutic management of hyponatremia, it appears that no 'active' treatment is undertaken in 21% of hyponatremia cases with severe symptoms and 38% with moderate severity. Our results, in line with the hyponatremia registry [4], confirm that fluid restriction is too often the only treatment undertaken in symptomatic hyponatremia. We further found that respondents prescribe isotonic saline as often as hypertonic saline in symptomatic hyponatremia, even though 65% of the respondents know 3% hypertonic is recommended in this setting (grade 1D). This discrepancy points toward a reluctance among nephrologists to use hypertonic saline, possibly considered as fostering overcorrection. To treat SIAD, 59% of participants propose the antidiuretic hormone receptor antagonist tolvaptan as second-line treatment when fluid restriction fails, whereas the EGH recommends against vaptans (grade 1C), in contrast with the North American hyponatremia guidelines [9]. Conversely, only 37% of respondents consider oral urea treatment, which the EGH proposes as second-line treatment (grade 2D).

We eventually evaluated how respondents monitor hyponatremia patients. Circumstances at risk of rapid natremia rise are identified by 27–54% of respondents, suggesting the hyponatremia 'overcorrection' risk score developed by Woodfine *et al.* [10] meets a practical need. Moreover, 46% of the respondents only took measures to relower an 'overcorrected' hyponatremia,

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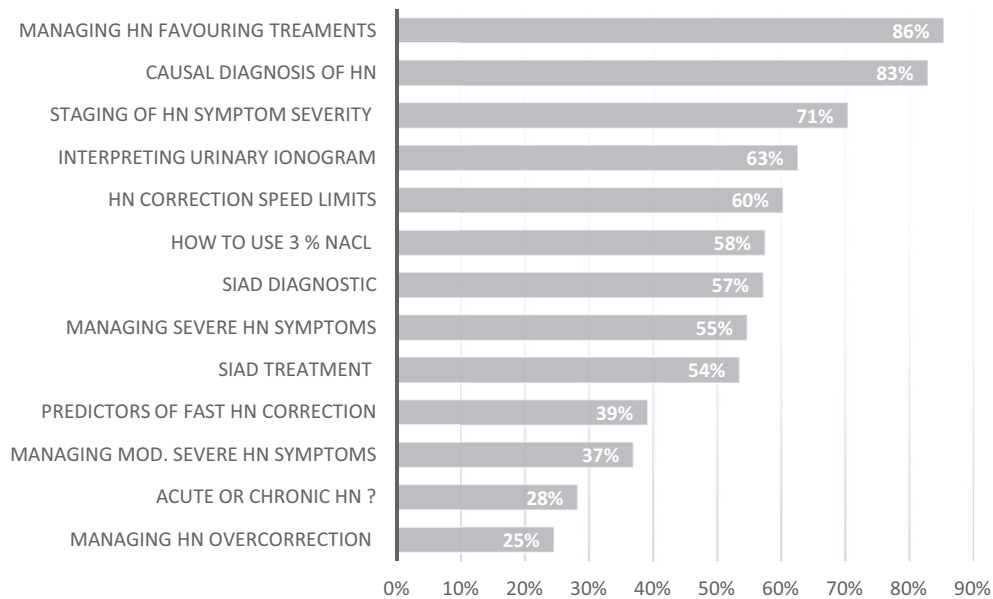


FIGURE 1: Proportion of adequacy between respondents' attitude and the EGH.

showing the 'relowering' strategy proposed by the EGH (grade 1D) is not yet a standard of care.

As participation was voluntary, our survey may present nonresponse bias. Yet the participation of about one-third of French nephrologists gives us an overview of the EGH appropriation in France. The overall adequacy of hyponatremia management with the EGH is intermediate and adherence to guidelines showed no correlation to the recommendation grades. Key points of the 2014 guidelines have not fully found their place in practice, yet the large participation demonstrates the interest of the nephrological community in hyponatremia management.

## SUPPLEMENTARY DATA

Supplementary data are available at [ckj](#) online.

## CONFLICT OF INTEREST STATEMENT

None declared.

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