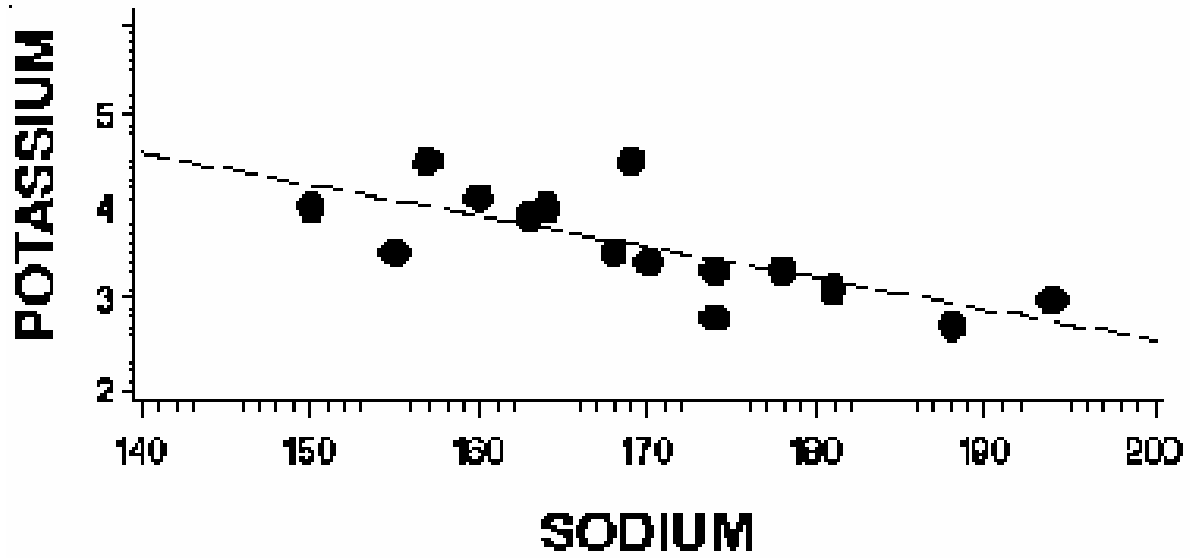


**Table 1. Results of metabolic and hormone studies in our patient with adipsic hypernatremia**

|                               | <i>Normal Values</i>                       | <i>On Admission</i>      | <i>Hospital Day 2</i> | <i>Hospital Day 4</i> | <i>Hospital Day 5</i> | <i>Hospital Day 6</i> | <i>Clinic Visit 1</i> | <i>Clinic Visit 2</i> | <i>Clinic Visit 3</i> |
|-------------------------------|--|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <i>Blood osmolality</i>       | 285-295 mosmol/kg                          | 359                      | 348                   | 335                   | 327                   | 318                   | 351                   | 342                   | 357                   |
| <i>Serum sodium</i>           | 136-145 mmol/L                             | 174                      | 168                   | 164                   | 160                   | 154                   | 170                   | 165                   | 173                   |
| <i>Serum potassium</i>        | 3.5-5.0 mmol/L                             | 2.8                      | 3.1                   | 3.3                   | 3.5                   | 3.9                   | 3.3                   | 3.5                   | 3.4                   |
| <i>Serum bicarbonate</i>      | 21-29 mmol/L                               | 32                       | 32                    | 31                    | 34                    | 30                    | 31                    | 33                    | 30                    |
| <i>Blood urea nitrogen</i>    | 7-18 mg/dL                                 | 21                       | 14                    | 4.0                   | 3.0                   | 10                    | 17                    | 17                    | 16                    |
| <i>Plasma renin activity</i>  | Supine, 20-160; Upright, 70-330 ng/dL/hr   | -                        | Supine, 47            | Supine, 31            | Supine, 32            | -                     | Upright, 394          | -                     | Upright, 329          |
| <i>Serum aldosterone</i>      | Supine, 3-16; Upright, 7-30 ng/dL          | -                        | Supine, < 1.0         | -                     | -                     | Supine, < 1.0         | Upright, 3.6          | -                     | Upright, 4.5          |
| <i>Antidiuretic hormone</i>   | 0.7-3.8 pg/mL                              | -                        | 7.1                   | < 2.0                 | < 0.5                 | -                     | 3.2                   | -                     | 1.2                   |
| <i>Urine sodium</i>           | In hypovolemia, < 20 mmol/L                | 192                      | -                     | -                     | -                     | -                     | 266                   | -                     | 227                   |
| <i>Urine potassium</i>        | In hypokalemia, < 15 mmol/L, < 25 mmol/day | 77 mmol/L<br>58 mmol/day | -                     | -                     | -                     | -                     | 68.5 mmol/L           | -                     | 135 mmol/L            |
| <i>Urine specific gravity</i> | In dehydration, > 1.025                    | 1.030                    | -                     | -                     | -                     | -                     | -                     | -                     | 1.030                 |
| <i>Patient's weight</i>       | When hydrated, at least 62.5 kg            | 60.5                     | -                     | 62.7                  | 62.3                  | 62.5                  | 61.3                  | 63.0                  | 60.5                  |

**Table 2. Results of electrolytes, renin and aldosterone determinations in 16 patients with adipsic hypernatremia, reported in the literature**

| <i>Authors,<br/>Year of the<br/>Case Report</i> | <i>Serum</i>               |                               |                                 |                        |                             |                                | <i>Urine</i>               |                               |                                 |
|---|----------------------------|-------------------------------|---------------------------------|------------------------|-----------------------------|--------------------------------|----------------------------|-------------------------------|---------------------------------|
|   | <i>Sodium<br/>(mmol/L)</i> | <i>Potassium<br/>(mmol/L)</i> | <i>Bicarbonate<br/>(mmol/L)</i> | <i>BUN<br/>(mg/dL)</i> | <i>Renin<br/>(ng/dL/hr)</i> | <i>Aldosterone<br/>(ng/dL)</i> | <i>Sodium<br/>(mmol/L)</i> | <i>Potassium<br/>(mmol/L)</i> | <i>Aldosterone<br/>(ug/day)</i> |
| <i>Avioli et al.,<br/>1962</i>                  | 160                        | 4.1                           | 26                              | 13                     | -                           | -                              | 78                         | -                             | 1.0-4.0                         |
| <i>Hays et al.,<br/>1963</i>                    | 178                        | 3.3                           | 31                              | 55                     | -                           | -                              | -                          | -                             | -                               |
| <i>Kastin et al.,<br/>1965</i>                  | 174                        | 3.3                           | -                               | -                      | -                           | -                              | -                          | -                             | 4.5 (normal,<br>6.0-8.0)        |
| <i>Pleasure et al.,<br/>1966</i>                | 181                        | 3.1                           | -                               | -                      | -                           | -                              | -                          | -                             | -                               |
| <i>Segar,<br/>1966</i>                          | 155                        | 3.5                           | 31.6                            | -                      | -                           | -                              | -                          | -                             | 9.0 (normal)                    |
| <i>Travis et al.,<br/>1967</i>                  | 168                        | 3.5                           | -                               | 39                     | -                           | -                              | -                          | -                             | 7.1-13<br>(normal)              |
| <i>Goldberg et al.,<br/>1967</i>                | 164                        | 4.0                           | 28                              | 15                     | -                           | -                              | 100                        | -                             | -                               |
| <i>Mahoney et al.,<br/>1968</i>                 | 157                        | 4.5                           | 33                              | 12                     | -                           | -                              | -                          | -                             | 33 (normal,<br>50-250)          |
| <i>Christie et al.,<br/>1968</i>                | 166                        | -                             | -                               | -                      | -                           | -                              | -                          | -                             | 4.3                             |
| <i>Alford et al.,<br/>1973</i>                  | 169                        | 4.5                           | 32                              | 42                     | 3.6 (normal,<br>1.7±0.5)    | 7.4 (normal,<br>5.8±4.5)       | -                          | -                             | -                               |
| <i>Blank et al.,<br/>1974</i>                   | 188                        | 2.7                           | 29                              | 27                     | -                           | -                              | 241                        | 15                            | 4.0                             |
| <i>Conley et al.,<br/>1976</i>                  | 194                        | 3.0                           | 37                              | 55                     | -                           | -                              | -                          | -                             | -                               |
| <i>Sklar et al.,<br/>1981</i>                   | 170                        | 3.4                           | 33                              | 33                     | -                           | -                              | -                          | -                             | -                               |
| <i>Schaff-Blass<br/>et al., 1983</i>            | 163                        | 3.9                           | 20                              | 34                     | >25 (normal,<br><4.0)       | -                              | -                          | -                             | -                               |
| <i>Hammond<br/>et al., 1986</i>                 | 150                        | 4.0                           | 22                              | 13                     | -                           | “Normal”                       | -                          | -                             | -                               |
| <i>Keuneke et al.,<br/>1999</i>                 | 162                        | -                             | 25                              | -                      | -                           | -                              | 119                        | -                             | -                               |



Initial serum potassium and sodium from patients with adipsic hypernatremia are strongly correlated  $r=-0.73$ ,  $p<0.002$ ,  $n=15$ . The data includes the first Na and K from the present case as well as similar patients reported from the literature (summarized in Table 2). Units for potassium and sodium are mmol/L.