Supplementary Materials

Table S1. Exclusion and Inclusion Criteria in patient acquisition

Category	Exclusion Criteria	Inclusion Criteria
Age	<65 years	>65 years with a geriatric patient profile
	65-70 years without any geriatric syndromes or comorbidities	>70 years
MMSE	<23 of 30 Points	>23 of 30 Point
		MMSE not evaluable, e.g., language barrier but clear understanding in the studies objective
Blood sampling	Admissions blood sampling did not take place within 48h after admission	Sampling was performed within 48h after admission
Hydration status assessment	Assessment was not feasible within the same day of the admission blood sampling	Same day assessment as the admissions blood sampling
Infection or other patient isolation	Patients were isolated because of an infection (e.g., covid 19) or diarrhea, or similar	

Table S2. AUC of the ROC Analysis of each method in detecting hypo- or hyperhydration

Method	Hypohydration	Hyperhydration
Clinical signs and anthropometric measures		
Axillary moisture	**0.854**	0.636
Body weight	0.763	**0.802**
Body height	0.759	0.588
BMI	0.691	**0.802**
IVC sonography		
IVC max. diameter, transcostal	0.760	**0.845**
IVC max. diameter (cm), subxiphoidal	**0.834**	**0.849**
Laboratory measurements		
Serum sodium	0.551	0.590
Serum osmolarity	0.525	0.456
Serum creatinine	0.532	0.614
BUN:Cr	0.511	0.493
Serum urea	0.518	0.582
Serum potassium	0.601	0.526
Urine parameter		
Urine color	0.492	0.604
Specific urine gravity	0.496	0.627
BIA		
BIA Resistance	0.720	0.702
BIA Reactance	0.647	0.647
Phase angle	0.514	0.557
Body Cell Mass	0.657	0.592
BIVA	0.669	0.682
Total Body Water	0.791	0.749
Extracellular Water	0.748	0.735

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ECW/TBW- ratio	0.521	0.556
Intracellular water	0.705	0.633
Fat free mass	0.787	0.709
Fat mass	0.717	0.779
Dry FFM	0.670	0.573

Table S3. Group differences in BIA-parameters stratified by hydration group

Characteristics **n (%)**	**Total** **101 (100)**	**Hypohydrated** **12 (11.9)**	**Euhydrated** **69 (68.3)**	**Hyperhydrated** **20 (19.8)**	**p**
Height*	167.1 (±8.84)	161.4 (±5.28)	167.4 (±8.33)	169.9 (±10.88)	0.011†
Weight*	76.9 (±19.91)	61.7 (±13.68)	74.6 (±17.00)	94.1 (±21.62)	**<0.001**†
BMI*	27.37 (±5.88)	23.6 (±4.92)	26.5 (±5.12)	32.50 (±5.91)	**<0.001**†
Total Body Water*	39.23 (±9.86)	31.56 (±5.86)	38.01 (±7.19)	47.47 (±13.62)	**<0.001**†
Extracellular Water*	23.14 (±6.98)	18.26 (±3.13)	22.37 (±5.60)	28.38 (±9.43)	**<0.001**†
ECW/TBW*	0.589 (±0.086)	0.582 (±0.061)	0.587 (±0.084)	0.601 (±0.106)	0.745†
Fatfree Mass*	49.61 (±11.37)	41.47 (±7.95)	48.46 (±8.89)	57.92 (±15.86)	**<0.001**†
Dry Fatfree Mass*	36.33 (±12.39)	31.38 (±8.71)	35.67 (±10.23)	41.24 (±18.36)	0.149†
Fat Mass*	27.32 (±12.87)	18.50 (±7.00)	26.11 (±11.86)	36.16 (±13.76)	**<0.001**†

* Mean ± Standard Deviation (SD); † Kruskal-Wallis-Test