



ACCADEMIA di
GERIATRIA



2° CONGRESSO NAZIONALE
Accademia di Geriatria

Domus Pacis Assisi
30 Settembre - 2 Ottobre 2021

ACQUA E SALI, UN EQUILIBRIO PRECARIO NEL GRANDE ANZIANO OSPEDALIZZATO: UNO STUDIO PRELIMINARE DI ACCURATEZZA DIAGNOSTICA

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Piramide alimentare per l'anziano: l'importanza dell'idratazione

Calcio - Vitamina D - Vitamina B₁₂

A - Carboidrati

1. Pane integrale
2. Pane asodico
3. Spaghetti, rigatoni
4. Riso
5. Polenta
6. Fiocchi d'avena
7. Pop corn

B - Verdure

1. Verdure assortite
2. Carote
3. Broccoli
4. Insalata mista
5. Spinaci congelati
6. Giardiniera

C - Frutta

1. Mista
2. Pere, uva
3. Arance
4. Banane
5. Gelato
6. Marmellata

D - Grassi

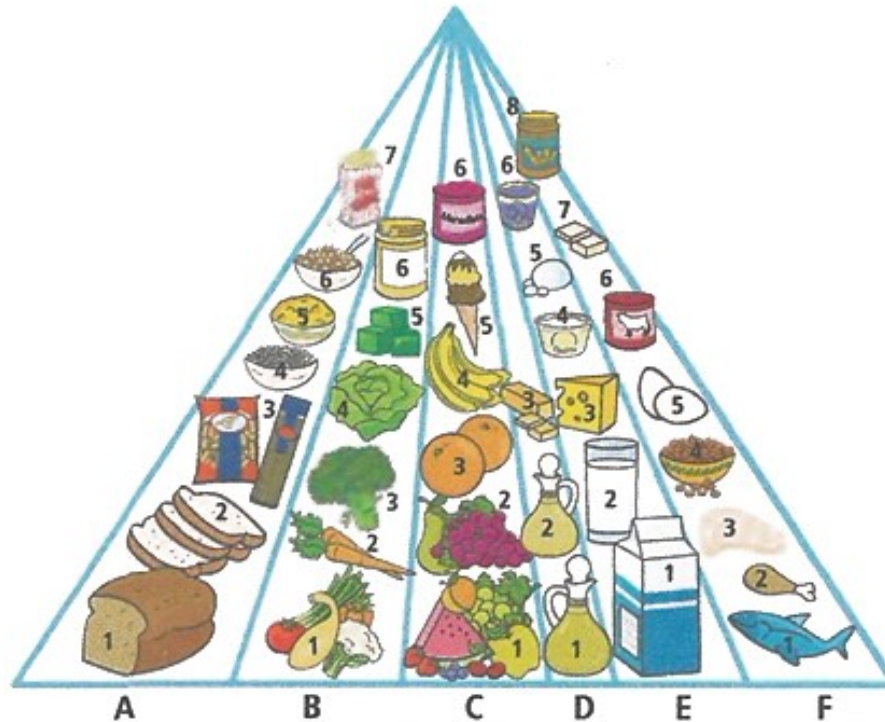
1. Olio d'oliva
2. Olio vegetale
3. Margarina vegetale

E - Latticini

1. Latte intero
2. Latte senza lattosio
3. Formaggi
4. Ricotta
5. Mozzarella light
6. Yogurt senza grassi

F - Proteine

1. Sgombro
2. Pollo
3. Tacchino
4. Legumi
5. Uova
6. Carne in scatola
7. Tofu (burro di soia)
8. Burro di arachidi

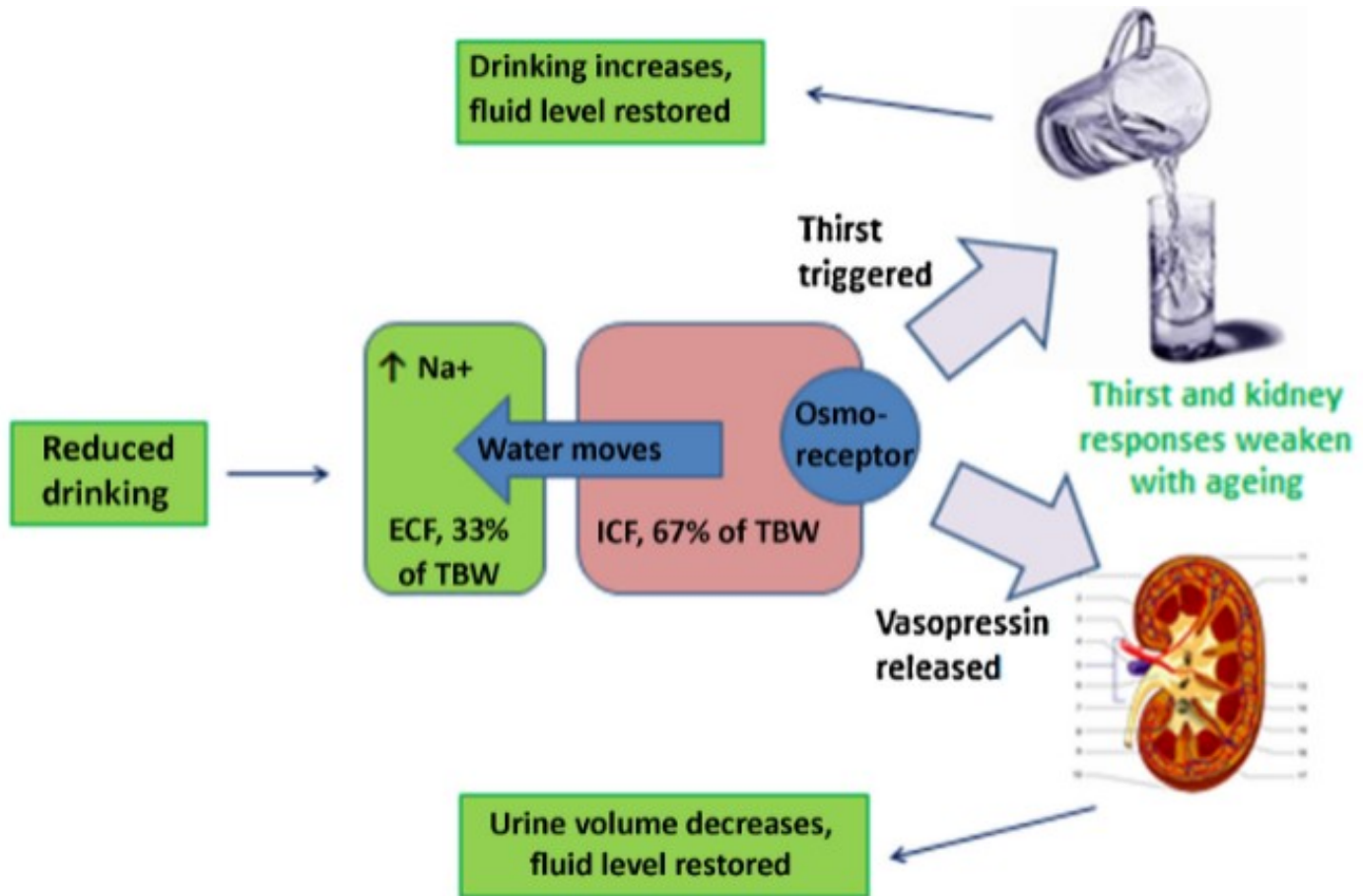




Water-loss dehydration and aging[☆]

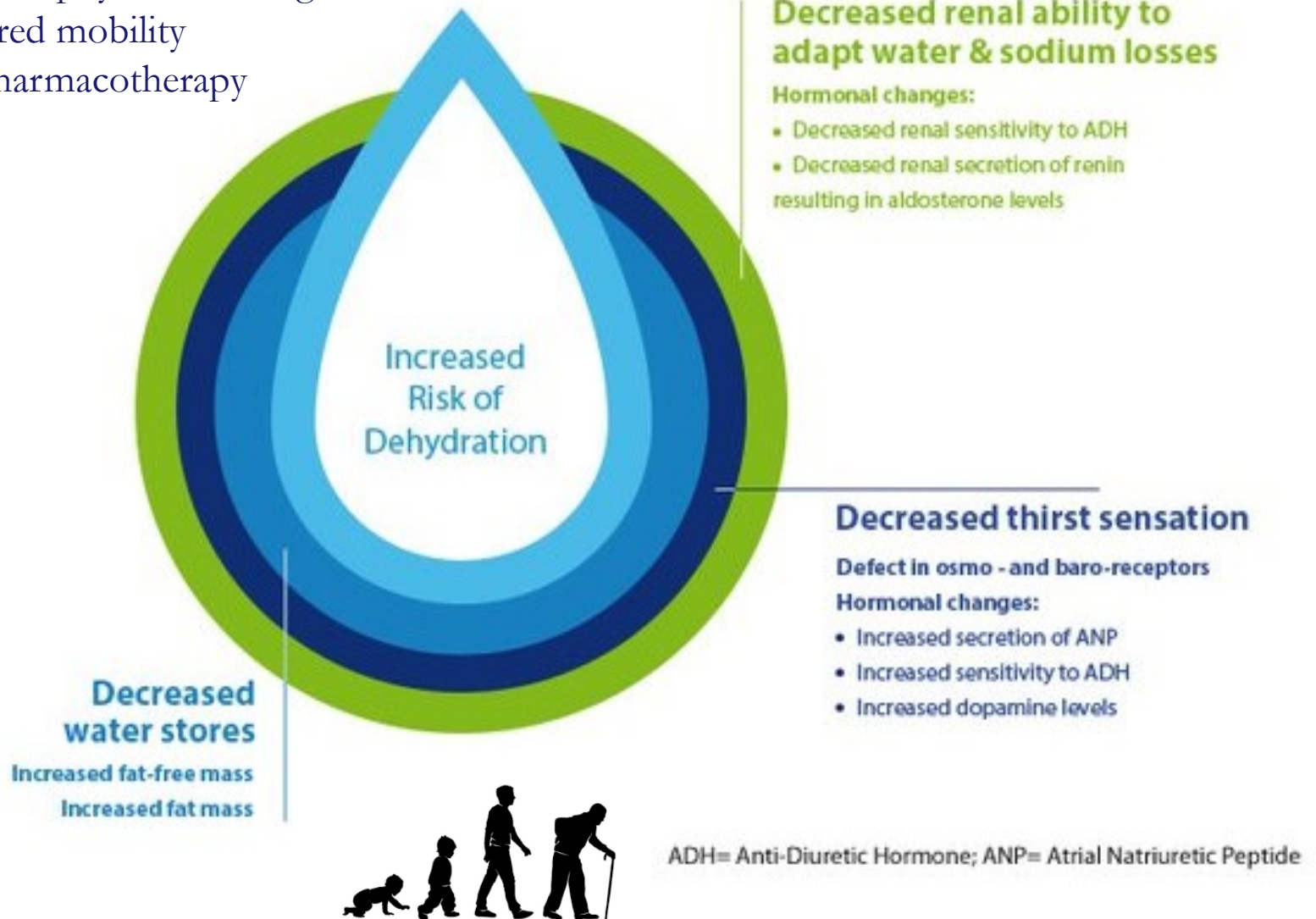
Lee Hooper^{*}, Diane Bunn, Florence O. Jimoh, Susan J. Fairweather-Tait

Norwich Medical School, University of East Anglia, Norwich Research Park, Norwich NR4 7TJ, Norfolk, UK



Age-related changes increasing risk of dehydration in older persons

- Visual impairments
- Impaired physical and cognitive abilities
- Impaired mobility
- Polypharmacotherapy

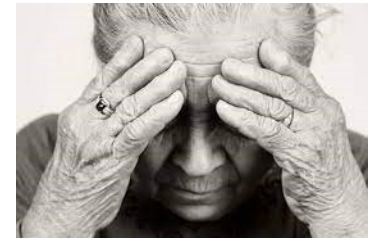


Health consequences of dehydration



Disease / health conditions	Level of evidence in the elderly population	Type of evidence in the elderly population	References
Constipation	Strong	Evidence from observational and one interventional studies Homogeneity in results	Anti, 1998 Manz, 2007 Robinson, 2002
Impaired cognition/ Acute confusion	Medium	Evidence from observational studies Heterogeneity in results from intervention studies	Kleiner, 1999 Suhr, 2004 Suhr, 2010 Popkin, 2010
Falling	Medium	Evidence from observational and one interventional studies Some heterogeneity in results	Costello, 2008 Water UK, 2005 Robinson, 2002
Hyperthermia	Medium	Limited evidence from interventional studies Plausible underlying mechanisms and evidence on population other than elderly	Begum, 2010
Glycaemic control (for diabetes or hyperglycaemia)	Medium	Limited evidence from interventional studies	Burge, 2001
Orthostatic hypotension	Medium	Limited evidence from interventional studies Plausible underlying mechanisms and evidence on population other than elderly	Lu, 2003 Shannon, 2002
Salivary dysfunction (xerostomia)	Medium	Limited evidence from interventional studies Plausible underlying mechanisms and evidence on population other than elderly	Ship, 1997
Urinary tract infection	Weak	Limited observational data based essentially on extrapolation from mechanisms and on evidence on population other than elderly	Manz, 2007 Beetz, 2003
kidney stones	Weak	Based essentially on extrapolation from evidence on population other than elderly	Zanni 2009 Water UK, 2005
Coronary heart disease	Weak	Limited evidence from observational studies Some heterogeneity in results	Chan, 2002 Rodriguez, 2009 Leurs, 2010
Pressure ulcers	Weak	Limited evidence from observational and interventional studies Some heterogeneity in results	Casimiro, 2002 Stotts, 2003 Stotts, 2009
Medication toxicity	Weak	Based essentially on extrapolation from mechanisms	Begum, 2010

Hydration status: a complex assessment



Original Study

Is This Elderly Patient Dehydrated? Diagnostic Accuracy of Hydration Assessment Using Physical Signs, Urine, and Saliva Markers

Matthew B. Fortes PhD^{a,✉}, Julian A. Owen MSc^a, Philippa Raymond-Barker MSc^a, Claire Bishop MD^b, Salah Elghenzai MD^b, Samuel J. Oliver PhD^a, Neil P. Walsh PhD^{a,✉}

JAMDA, 2015

> Eur Rev Med Pharmacol Sci. 2013 Jul;17(13):1800-3.

Identification of the hydration state in emergency patients: correlation between caval index and BUN/creatinine ratio

A Riccardi¹, B Chiarbonello, P Minuto, G Guiddo, L Corti, R Lerza

Nutritional and hydration status in elderly subjects: Clinical rating versus bioimpedance analysis

A. Rösler^{a,*}, F. Lehmann^a, T. Krause^a, R. Wirth^b, W. von Renteln-Kruse^a

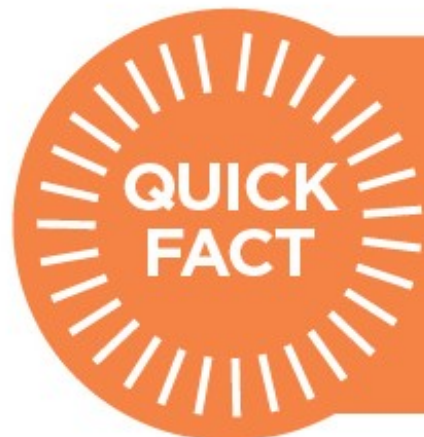
Archives of Gerontology and Geriatrics, 2010

Hydration and outcome in older patients admitted to hospital (The HOOP prospective cohort study)

AHMED M. EL-SHARKAWY¹, PHILLIP WATSON², KEITH R. NEAL³, OLLE LJUNGQVIST⁴, RON J. MAUGHAN²,
OPINDER SAHOTA⁵, DILEEP N. LOBO¹

A prospective cohort study on older adult participants admitted acutely to a large UK teaching hospital

A total of 200 participants were recruited at admission to hospital, 37% of whom were dehydrated. Of those dehydrated, 62% were still dehydrated when reviewed at 48 h after admission



62%

Older people dehydrated on hospital admission and still dehydrated 48 hours later



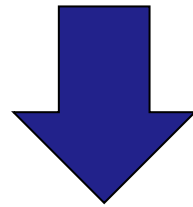
**QUALE PARAMETRO E' PIU' ACCURATO PER UNA IDENTIFICAZIONE
PRECOCE DEL GRANDE ANZIANO OSPEDALIZZATO?**



Materiali e metodi

Studio osservazionale retrospettivo
Setting acuto del Reparto di
Geriatrica dell'Ospedale Santa Maria
della Misericordia di Perugia

Screenati da Luglio 2020 ad Agosto 2021 oltre 300 soggetti



Arruolati 59 soggetti
(45 F/ 14 M over 80)

POTENZIALI MARCATORI DI IDRATAZIONE



CLINICI

- PAS
- Refill capillare
- FC

BIOCHIMICI

- Rapporto BUN/Cr
- Sodio
- Osmolarità plasmatica calcolata
- Albumina
- Cloro
- BNP

POCUS

- VCI (insp-esp)
- Aorta media
- Indice di collapsabilità
- Indice VCI/Aorta

BIA

- TBW/FFM (acqua totale corporea/massa magra)
- Angolo di fase
- FFM (massa magra)
- FM (massa grassa)
- TBW (acqua totale corporea)
- ECW (acqua extracellulare)

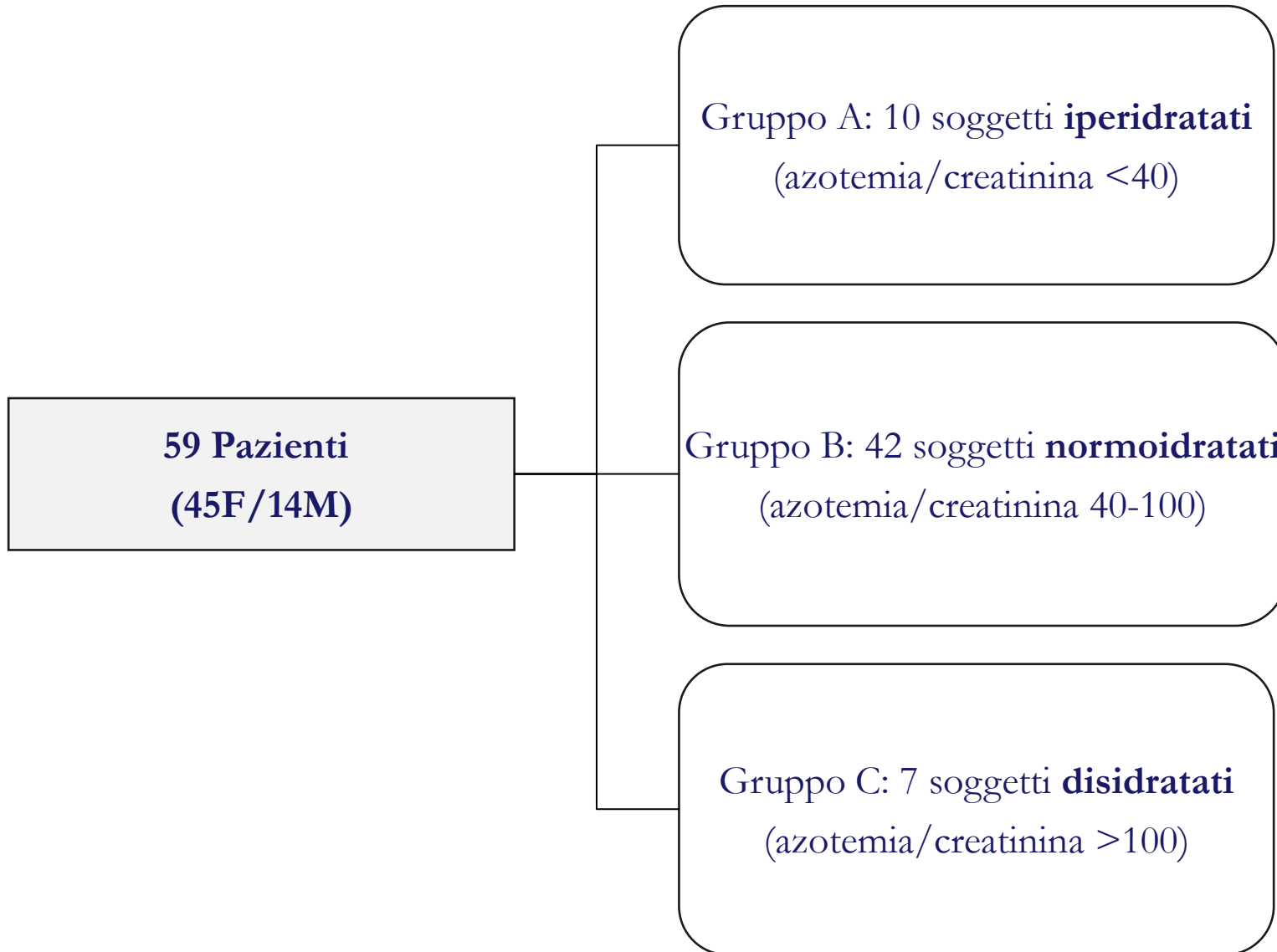
Risultati

Caratteristiche descrittive della popolazione in studio (n=59)

	Media \pm DS
Età (anni)	87.4 \pm 5.9
BMI (kg/m ²)	24.6 \pm 3.3
PAS (mmHg)	125 \pm 26
PAD (mmHg)	66 \pm 12
Albumina (mg/dl)	3.4 \pm 0.4
Creatinina (mg/dl)	1.2 \pm 0.7
Azotemia (mg/dl)	80.2 \pm 59.2

I dati sono espressi come media \pm DS. BMI = indice di massa corporea;
PAS = pressione arteriosa sistolica; PAD= pressione arteriosa diastolica.

Risultati



Risultati

Media dei parametri clinici nella popolazione studiata stratificata per gruppi

	<i>Gruppo A</i> <i>“iperidratati”</i>	<i>Gruppo B</i> <i>“normoidratati”</i>	<i>Gruppo C</i> <i>“disidratati”</i>	<i>p</i>
	<i>(n = 10)</i>	<i>(n = 42)</i>	<i>(n = 7)</i>	
PAS (mmHg)	129 ± 32	123 ± 24	137 ± 26	0.395
Refill capillare (secondi)	1.70 ± 0.67	1.85 ± 0.88	2.43 ± 0.78	0.188
FC (bmp)	76 ± 12	86 ± 22	91 ± 23	0.306

Risultati

Media dei parametri biochimici nella popolazione studiata stratificata per gruppi

	<i>Gruppo A</i> <i>“iperidratati”</i> (<i>n</i> = 10)	<i>Gruppo B</i> <i>“normoidratati”</i> (<i>n</i> = 42)	<i>Gruppo C</i> <i>“disidratati”</i> (<i>n</i> = 7)	<i>p</i>	
Sodio (mmol/L)	131.5 ± 8.4	139.0 ± 6.2	148.1 ± 11.3	<0.0001	←
Cloro (mmol/L)	99.5 ± 6.9	102.2 ± 5.9	111.1 ± 11.3	0.010	←
Osmolarità plasmatica (mOsm/Kg)	286.6 ± 19.4	318.4 ± 22.6	359.5 ± 53.28	<0.0001	←
Albumina (mg/dl)	3.2 ± 0.48	6.4 ± 0.43	3.4 ± 0.4	0.128	
BNP (pg/ml)	9728 ± 16888	5752 ± 9352	7555 ± 7714	0.766	



Risultati

Media dei parametri ultrasonografici nella popolazione studiata stratificata per gruppi

	<i>Gruppo A</i> <i>“iperidratati”</i> <i>(n = 10)</i>	<i>Gruppo B</i> <i>“normoidratati”</i> <i>(n = 42)</i>	<i>Gruppo C</i> <i>“disidratati”</i> <i>(n = 7)</i>	<i>p</i>
VCI insp media (cm)	0.783 ± 0.56	0.973 ± 0.51	0.755 ± 0.50	0.429
VCI esp media (cm)	1.51 ± 0.58	1.56 ± 0.59	1.35 ± 0.41	0.692
Aorta media (cm)	1.51 ± 0.32	1.66 ± 0.38	1.49 ± 0.32	0.347
Collassability (%)	50.2 ± 23.9	36.5 ± 29.3	51.5 ± 28.1	0.246
IVC/Aorta	1.00 ± 0.34	0.98 ± 0.36	0.95 ± 0.34	0.943

Risultati

Media dei parametri bioimpedenziometrici
nella popolazione studiata stratificata per gruppi

	<i>Gruppo A</i> <i>“iperidratati”</i>	<i>Gruppo B</i> <i>“normoidratati”</i>	<i>Gruppo C</i> <i>“disidratati”</i>	<i>p</i>
	<i>(n = 10)</i>	<i>(n = 42)</i>	<i>(n = 7)</i>	
TBW/FFM	0.79 ± 0.07	0.83 ± 0.23	0.86 ± 0.05	0.803
PhA	3.53 ± 1.09	3.85 ± 2.48	2.68 ± 3.02	0.480
FFM	47.08 ± 11.98	44.14 ± 9.31	41.14 ± 15.04	0.517
FM	23.42 ± 9.88	22.41 ± 10.30	52.14 ± 76.37	0.030
TBW	37.91 ± 11.83	35.95 ± 7.03	34.94 ± 10.16	0.737
ECW	27.22 ± 9.55	20.42 ± 7.09	25.67 ± 4.39	0.441



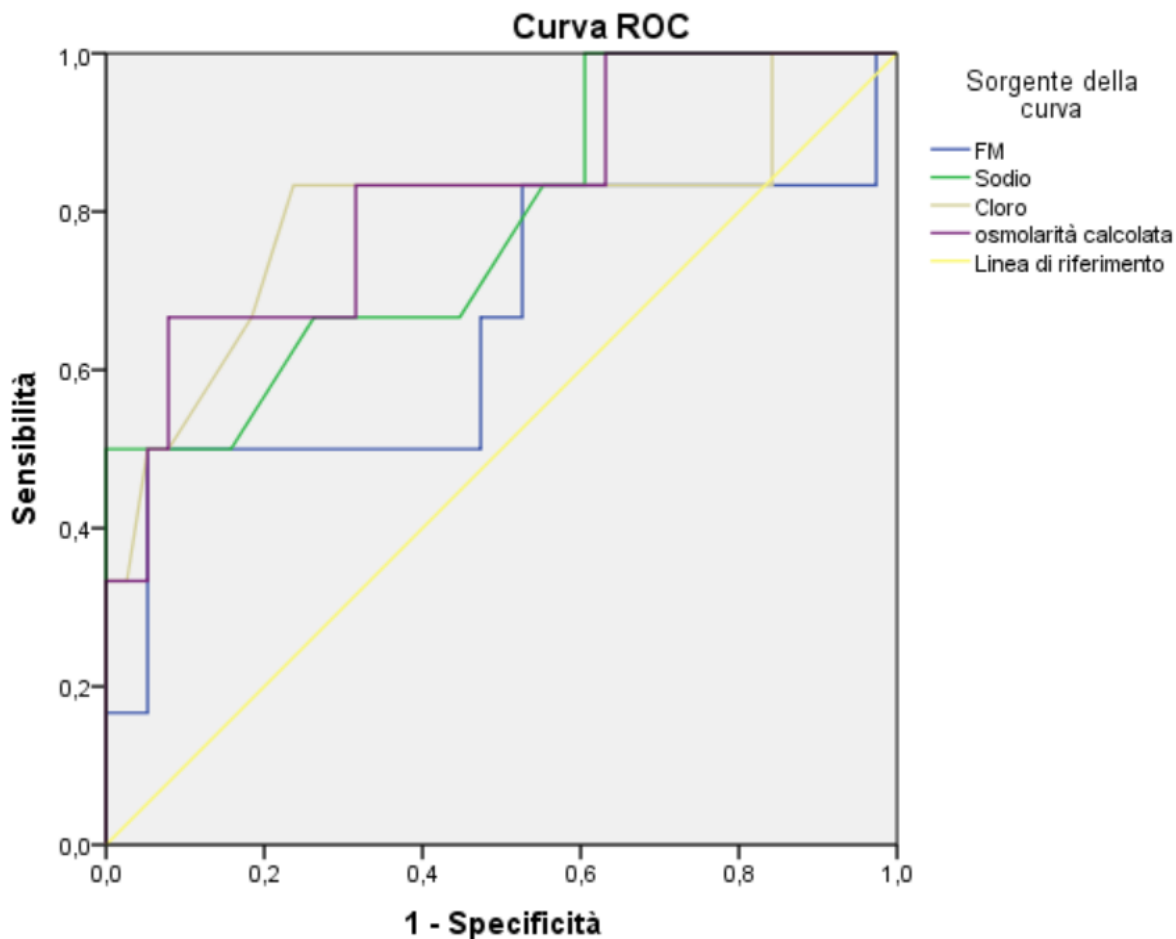
Risultati

- **Livelli di sodio sierici**
- **Livelli di cloro sierici**
- **Osmolarità plasmatica calcolata**
- **FM**



Risultati

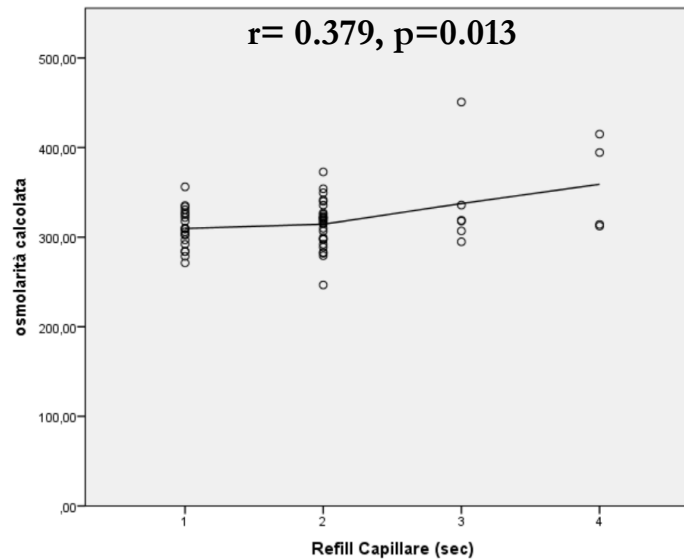
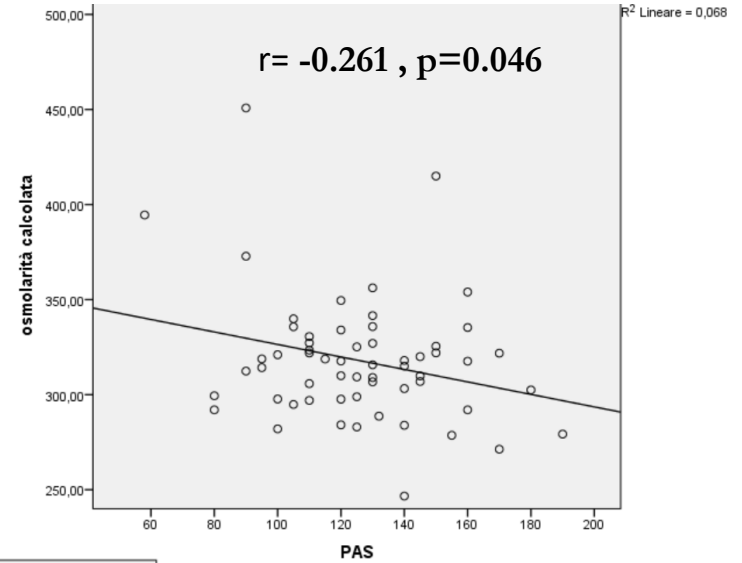
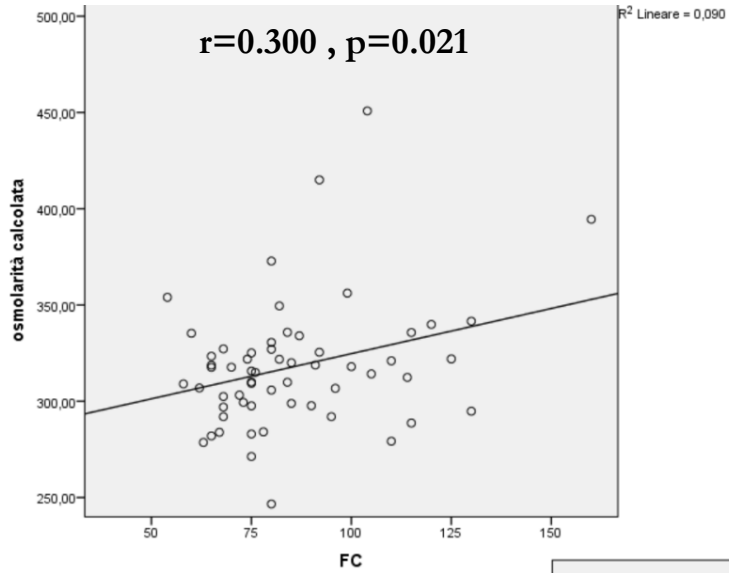
Curva ROC ottenuta dall'uso simultaneo di sodio, cloro, osmolarità plasmatica calcolata, FM



OSMOLARITA' PLAMATICA CALCOLATA (AUC 0.820; P=0.013)

Risultati

Correlazione semplice dell'osmolarità plasmatica con tutte le variabili considerate nello studio



Conclusioni

L'**osmolarità plasmatica** calcolata è il più accurato parametro per stabilire lo stato di idratazione del paziente grande anziano e correla con la clinica.



Grazie per l'attenzione