

*Abstract*

# Fluid Intake from Water Predicts the Hydration Status of Older Hospitalised Adults <sup>†</sup>

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Hospitalised patients may have worse clinical outcomes and a longer length of stay if they are dehydrated. The aim of this study was to assess volume and sources of fluid intake and access to fluid among hospital in-patients (aged  $\geq 65$  years), and to compare their total fluid intake and hydration status.

Total daily fluid intake was assessed after meals to coincide with the 24-h period when blood was drawn to measure serum osmolality. Sources of fluid and food intake were determined using an interactive assessment tool.

Of 89 patients (mean age  $82 \pm 8.0$ ), 16% were dehydrated (serum osmolality  $\geq 300$  mOsm/kg) and 27% had impending dehydration (295–299 mOsm/kg). The median (IQR) total fluid intake was 1.7 (1.6, 1.9) L/day. Foods contributed 18% of total fluid intake while approximately 82% came from beverages including water, hot and cold beverages. Participants who struggled versus didn't struggle to open fluid lids had lower median fluid intakes ( $P = 0.005$ ). Patients who were hydrated (serum osmolality  $< 295$  mOsm/kg) versus impending dehydration or dehydrated ( $\geq 295$  mOsm/kg), had a higher median total fluid intake ( $P = 0.16$ ), from all beverages ( $P = 0.06$ ) and water ( $P = 0.02$ ). Binary logistic regression suggested that of all sources of fluid intake, water was the only predictor of hydration status ( $P = 0.02$ ). The adjusted odds of serum osmolality  $\geq 295$  were increased for patients in the first (56%),  $< 0.3$  litre, OR = 8.1, 95% CI 1.8–37,  $P = 0.007$  and second (48%), 0.3–0.8 L, OR = 5.3, 95%CI 1.1–25,  $P = 0.04$ , tertiles than the third (26%) tertile of water intake ( $\geq 0.8$  litre). Patients with bladder control difficulty had a lower water intake (in the first/second tertiles (81%) than those without difficulty ( $P = 0.03$ ).

Overall, 43% of patients were dehydrated or had impending dehydration. Monitoring the frequency and intake of water, and additional assistance for patients with bladder control difficulty may be potential strategies to prevent dehydration in older hospitalised patients.



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