| Table 1. Summary of included studies | | | | | | | |
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| First author, year, country | Design | Participants | Proximity to death | Aims / description | Research methods | Key findings | Gough's WoE (A B C - D) |
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| **Weight of Evidence: Medium** | | | | | | | |
| Cerchietti 2000 Argentina[21] | Prospective controlled trial | 42 patients with "terminal advanced cancer" and inadequate hydration | Mean survival "close to 4 days in both groups" (exact figures not given) | Assess usefulness of SC hydration in relieving thirst and chronic nausea (measured by patient-rated VAS) or "delirium" (measured by MMSE) | Participants randomised to 1L fluid / day or usual care. Comparison of means between groups. | Both groups showed improvement in thirst/nausea at 24h. CAH group had better relief from chronic nausea at 48h (p=0.027). | L M H - M |
| Chiu 2002 Taiwan[22] | Cohort study | 344 PCU inpatients with advanced cancer | Mean survival 23.9 days; retrospective review enabled analysis of data from 48 hours before death for most participants | Assess patients' views on acceptability of CAH as death approaches; also to perform survival analysis | Survey (piloted and assessed for content validity). Descriptive statistics (survey) and survival analysis (multiple Cox regression). | 66-76% of patients perceived no effect of CAH; 19-32% felt it brought "more comfort", 2-6% felt it brought "less comfort". Hazard ratio for survival for using CAH 2 days before death of 1.03. | L M M - M |
| Davies 2018 UK[20] | Unblinded feasibility cluster randomised trial | 200 PCU or cancer centre inpatients with advanced cancer, reduced oral intake and prognosis < 1 week | Median survival 2.9-4.2 days; inclusion criteria state last days of life | Determine if a definitively powered study of CAH at end of life can be done, with a hypothesis that adequate hydration will reduce incidence of delirium in cancer patients at end of life. Symptom measurements taken by HCPs | Sites randomised to receive usual care or usual care plus IV or SC hydration (volume determined by weight as per NICE guidance CG174). Intention-to-treat statistical analysis. Survival analysis with COX regression model. | 38.5% in CAH group stopped hydration due to adverse effect. Frequency of hyperactive delirium was not reduced, but onset was delayed (p=0.098). No differences seen in other symptoms measured. Median survival 2.9 days (no hydration) vs 4.3 days (hydration group), p=0.038. HR 0.358 for survival at 3 days in CAH. | H M H - M |
| Fritzson 2015 Sweden[23] | Retrospective historical case-control study | 280 inpatients who had an expected in-hospital death | Inclusion criteria: last week of life | Investigate whether dying patients with CAH have more or fewer symptoms than those without | Case note and chart review. Patients divided into 5 groups depending on received volume of hydration. Statistical comparisons included $\chi^2$ test, Mann-Whitney U test, and univariate logistic regression. | More dyspnoea recorded in patients who received CAH in the last 24h of life (p<0.0001) and in the last week (p=0.0005). No differences seen in anxiety and nausea. | M M H - M |
| Lokker 2019 The Netherlands[9] | Prospective observational study | 371 inpatients judged to be dying by an MDT in hospital or hospice | Mean survival 25 hours from start of monitoring | Investigate whether the amount of fluid intake (oral or parenteral) preceding or during the dying phase is | Daily clinician / nurse assessment of restlessness (VICS scale) and "death rattle" (Back score). Mann-Whitney | No association seen between volume of fluid intake and occurrence of "death rattle" or restlessness. Higher fluid intake in | L M H - M |

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| | | | | related to occurrence of "death rattle" and terminal restlessness | U test used for significance testing. | the 25-48 hours before death associated with terminal restlessness in the final 24h of life (p=0.049) | |
| Morita 2005 Japan[24] | Prospective observational study | 226 patients with abdominal malignancies, in community or on oncology ward | Inclusion criteria: last three weeks of life; study design allowed for review of data from 24 hours, 7 days and 3 weeks before death | Explore associations between hydration volume and symptoms in the last 3 weeks of life in patients with abdominal malignancies | Daily examination and physician rating of symptoms and potential covariates. Patients divided into groups receiving >1L/day or <1L/day, 1 and 3 weeks before death. Univariate analyses using $\chi^2$ and Mann-Whitney U tests. | Increase in dehydration score was higher in the non-hydration group (p=0.004). A significant increase in ascites was seen in the CAH group (p=0.035). No other significant differences were seen after controlling. | L H H - M |
| Nakajima 2013 Japan[25] | Prospective observational study | 75 patients with abdominal malignancies and prognosis <3 months | Inclusion criteria: last three weeks of life; study design allowed for review of data from 24 hours, 7 days and 3 weeks before death | Explore influence of hydration volume on signs and symptoms in last 3 weeks of life in patients with abdominal malignancies | Patients divided into groups receiving >1L/day or <1L/day, 1 and 3 weeks before death. Signs and symptoms evaluated by clinicians prospectively. Fisher's exact and Mann-Whitney U tests used. | The group receiving CAH >1L/day were found to have worse scores for peripheral oedema (p=0.04), ascites (p=0.037) and bronchial secretions (p=0.036). Dehydration score worse in the less-hydrated group (p=0.027). | M M H - M |
| Raijmakers 2013 The Netherlands[26] | Qualitative interview study | 23 relatives of deceased patients under hospice care, bereaved in the last 2-4 months | N/A (study of bereaved relatives) | Contribute to better understanding of relatives' concerns regarding reduced oral intake near end of life | Semi-structured interviews. Thematic analysis. | Themes identified as "meaning of oral intake", "responding to decreased oral intake", "part of the process", "patient's choice", "the vicious circle", and "communication and information". Symbolic meaning seen to be more important than nutritional value to many. | M M L - M |
| **Weight of Evidence: Low** | | | | | | | |
| Krishna 2010 Singapore[27] | Record review study | 238 inpatients with cancer on an oncology ward | Retrospective case note review examining data from last 48h of life | Determine occurrence of symptoms of hydration-related symptoms in last 48h of life; determine impact on survival | Retrospective case note review. Descriptive statistics and Kaplan-Meier survival analysis (time between palliative care referral and death). | No difference seen in survival. No differences seen in any symptoms except CCF (higher in non-CAH group, p=0.036) and peripheral oedema (higher in non-CAH group, p=0.05) | L L H - L |
| Morita 2003 Japan[28] | Uncontrolled before-after study | 284 PCU inpatients with a cancer diagnosis | Inclusion criteria state participants had to die in order to be included; | Clarify effects of opioid rotation and CAH on prevalence of agitated delirium at end of life | Retrospective case note and chart review with multi-rater symptom measurements. Cohen's $\kappa$ test for interrater | No differences in the prevalence of agitated delirium, communication or consciousness scores were seen in the two study periods. | L L M - L |

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| | | | measurements taken from 1 week before death | | reliability. Comparison of means in first and second study periods. | | |
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| Musgrave 1995 Israel[29] | Cross-sectional survey | 19 terminally ill oncology ward inpatients with IV fluids | Inclusion criteria: prognosis < 10 days | Clarify the effects of IV hydration on the sensation of thirst in dying patients | Structured questionnaire developed and administered daily along with patient assessment of thirst, and nurse assessments of symptoms and IV intake. Descriptive statistics. | No relationship was seen between thirst and quantity of IV fluids used. | L L M - L |
| Musgrave 1996 Israel[30] | Cross sectional survey | 33 inpatients with cancer in an oncology ward, and 32 family members | 30 / 33 participants died within 10 days | Identify attitudes of patients and family to IV fluids in the terminal phase | Convenience sampling. Single administration of survey. Descriptive statistics. | 7 out of 10 competent dying patients expressed a positive disposition towards IV fluids; 23 couldn't say. 81% of family members were positive. | L L M - L |
| Otani 2013 Japan[31] | Record review study | 179 terminally ill cancer patients (*no other information*) | Survival data not given explicitly, but the abstract suggests some measurements taken 1 week before death | Evaluate association between CAH and symptoms in the last week of life | Retrospective case note review. Patients classified into 3 groups (<0.5L, 0.5-1L, and >1L/day). Groups compared with $\chi^2$ test. Clinical factors and symptoms assessed with multiple regression analysis. | As hydration increased, incidence of dyspnoea (66% vs 25%) and bronchial secretions (49% vs 18%) "significantly" increased; no p-values quoted. | L L M - L |
| Torres-Vigil 2012 USA[32] | Cross sectional survey | 76 relatives of deceased patients with cancer, bereaved in the last 3-23 months | N/A (study of bereaved relatives) | Identify factors associated with bereaved caregivers' perceptions regarding benefits patient derived from CAH in last weeks of life | 16-item Likert scale survey (validation not mentioned). Descriptive statistics. | 76% agreed that CAH had been beneficial. Views were mostly strongly positive towards CAH being helpful, not bothersome, and psychologically useful. | L M M - L |
| Viola 1997 Canada[33] | Prospective controlled trial | 66 inpatients in two PCUs with advanced cancer who were dying and dehydrated | Inclusion criteria state last week of life; measurements taken through study period including last days of life | Identify symptoms in the dying that may be affected by CAH therapy | Patients at one site received AH therapy while those at the other site did not. Multiple clinician-rated symptoms and clinical outcomes recorded. Descriptive statistics. | Several major differences between cohorts at two sites noted at baseline, making results non-comparable. Several data are missing from the analysis. Author states that myoclonus is more common in the no-hydration group but does not quote figures. | L M M - L |