Hydration in the dying phase

Audit Group
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Summary

- Background/Context for audit- Dr E McKenna
- Family/HCPs views- Dr E McKenna
- Existing S&G- Agnes Noble
- Definitions- Dr S Fradsham
- GMC guidance- Dr S Fradsham
- Summary of available evidence- Dr S Fradsham
- Audit results- Dr Catriona Mayland
- Updated S&G- Dr Heino Hugel
Press Coverage

‘Palliative carers should pay more attention to hydration’
The Times Sept 2009

‘Terminally ill grandmother “left to starve” by doctors’
Telegraph Oct 2009

‘A patient's fears doctors may deny him life-prolonging treatment are unfounded, the High Court has heard’
bbc.co.uk Feb 2004

‘Judge tells hospital to feed widow, 91 'left to die’
Telegraph Oct 2003
Carers Views

• ‘I would hate to think that they actually felt thirsty and there was nothing they could do about it’
• ‘It does worry me and I know you can’t keep pumping stuff into them and prolonging the death process’
• ‘It is not knowing medically really . . . . I wish somebody had explained’
Catholic Views 2004

• Pope John Paul II said hospitals are morally obligated to continue artificial feeding and hydration for patients in persistent vegetative state\(^1\)

• Should be basic care and removal was “euthanasia by omission”\(^1\)

• Pope states that the supply of water and food even when medically assisted “always represents a natural means of preserving life and not a medical act”\(^2\)
Clarification 2005

- Catholic bishops asked to clarify position
- A clarification was issued with approval from Pope Benedict XVI
- Under church’s policy “suffering and death by starvation and dehydration are prevented”\(^3\)
- Nutrition and hydration support may not be obligatory when such care becomes “excessively burdensome”\(^3\)
- “In such situations when death is clearly imminent and inevitable, one can in conscience refuse forms of treatment that would only secure a precarious and burdensome prolongation of life”\(^2\)
Jewish guidelines for artificial hydration

• ‘Halacha’ is the age-old legal-ethical system which governs most aspects of Jewish life.
• In medical decision making, halacha would deem the sanctity of life as the uppermost consideration. The imperative to preserve life supersedes ‘quality of life’ in medical decision making.
• However, in the case of terminally ill patients where decisions to utilise certain treatments, surgery or therapies which are likely to increase the patients pain or be considered medically futile – including artificial hydration, the patient would be entitled to reject such treatments in advance.
Patients’ wishes on Clinically Assisted Hydration

- 2 recent papers of interest
- Neither paper looked at hydration in last 2 weeks of life
- First study as questionnaire carried out in Taiwan by Chiu
- Enrolled all consecutive terminal cancer patients admitted to palliative care unit in university hospital in Taiwan for 2 years
- Patients were not severely cognitively impaired
**Chiu et al 2004**

- Explored patients’ knowledge of and attitude towards clinically assisted hydration
- 75.8%(94) expressed wish to have hydration (n=124)
- 51.3% of patients responded that iv only route that can provide hydration

<table>
<thead>
<tr>
<th>Question (n=197)</th>
<th>Yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received ANH in last month</td>
<td>154(78.2%)</td>
<td>43(21.8%)</td>
</tr>
<tr>
<td>IV fluids used</td>
<td>140(71.1%)</td>
<td>57(28.9%)</td>
</tr>
<tr>
<td>Do you understand what ANH is?</td>
<td>115(58.4%)</td>
<td>82(41.6%)</td>
</tr>
</tbody>
</table>
Mercadante et al 2005

- Surveyed 82 patients admitted consecutively to acute pain relief and palliative care unit who required hydration
- Excluded those impaired cognitively, in last 2 weeks of life, neurological disturbances
- 54 patients agreed to be interviewed
- 90.2% (n=51) thought parenteral hydration was useful
- 41/54 thought main indicator for fluids was clear sign of dehydration
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think hydration is also nutrition (n=47)</td>
<td>72.34</td>
<td>27.66</td>
<td>.358</td>
</tr>
<tr>
<td>Do you think hydration may improve your clinical condition (n=47)</td>
<td>93.88</td>
<td>6.12</td>
<td>.641</td>
</tr>
<tr>
<td>Would you like to continue hydration for prolonged periods of time (n=28)</td>
<td>71.43</td>
<td>28.47</td>
<td>.157</td>
</tr>
<tr>
<td>Is hydration an acceptable burden (n=48)</td>
<td>91.67</td>
<td>8.33</td>
<td>.605</td>
</tr>
<tr>
<td>Do you think s/c route as effective as iv route (n=38)</td>
<td>23.68</td>
<td>76.32</td>
<td>.485</td>
</tr>
<tr>
<td>Would you prefer s/c route(n=38)</td>
<td>35.90</td>
<td>64.10</td>
<td>.860</td>
</tr>
<tr>
<td>Where indicated would you like to continue hydration at home (n=32)</td>
<td>81.35</td>
<td>18.75</td>
<td>.637</td>
</tr>
</tbody>
</table>
Conclusions

• Confusion among patients for reason and benefits of clinically assisted hydration
• No recent survey carried out in UK population
Nurses’ Attitudes towards CAH

- Literature review undertaken by Byron in 2008 assessing nurses’ attitudes towards artificial hydration in terminally ill patients
- 15 papers in total reviewed with 3 from UK
- Variety of settings including hospitals, hospices, nursing homes
- Overall more negative attitude to provision of clinically assisted fluids
- Older nurses and those who had witnessed more deaths less in favour of CAH
- Main argument against included patient’s comfort, dignity, painful, safeguarding a natural death
- Main argument for included method of giving medication, avoid thirst, ensuring sanctity of life.
Medical attitudes

- Morita in 2000 sent out a survey to 1,123 Japanese hospital and hospice physicians
- 595 responses
- 75% felt main factors for CAH were patient’s wishes, degree of physical distress and symptom alleviation
- 53% disagreed that reduced oral intake in terminal phase is a natural process
- 29% felt withholding iv hydration shortens patient’s survival.
- Earlier survey in 1989 of Welsh doctors by Marin found 53% would give iv fluids with 87% resiting cannula if needed
Existing Standards and Guidelines

Agnes Noble CNS CCO
General principles

• The provision of oral fluids forms part of basic patient care and should not be withdrawn or withheld

• Artificial hydration, such as intravenous or subcutaneous fluids, has been classified as medical treatment in common law, although this definition has not been universally accepted
General principles continued

• Blanket policies regarding the use of artificial hydration in dying patients are unhelpful. Decisions regarding hydration should be individualised to each patient

• There is a lack of good evidence regarding the benefits, burdens and risks of artificial hydration in the dying phase

• It is unclear whether dying patients develop symptoms of dehydration or whether artificial hydration improves these symptoms
General principles continued

• The Mental Capacity Act 2005 highlights important factors that should be considered when making decisions about hydration at the end of life
Guidelines

- Decisions surrounding the use of artificial hydration should be discussed with the multi-professional team, patients and relatives in accordance with the Mental Capacity Act.
- Decisions regarding the use of artificial hydration should take into consideration the potential harms and benefits to the patient.
Guidelines continued

• Hydration decisions should be individualised and include the participation of the family, patient and other disciplines

• A time-limited trial of hydration to assess if it improves symptoms may be appropriate in some patients
Standards

• Decisions surrounding the use of artificial hydration in dying patients should involve the multi-professional team and be clearly documented in the case notes
• The use of artificial hydration in dying patients should be reviewed on a daily basis
• If artificial hydration is continued in the dying phase, a rate of 1 litre over 24 hours intravenously, subcutaneously or via a PEG/PEJ is the recommended regimen
Literature Review

Dr Sarah Fradsham
Definitions

• Dehydration - loss of water and salt essential for normal body function

• Clinically assisted hydration (CAH) - includes IV or subcutaneous provision of fluids, fluids given via NG, PEG or RIG.

(GMC 2009 Draft Consultation)
GMC Guidance

- The most difficult and sensitive decisions in End of Life Care are often those around starting or stopping potentially life prolonging treatment such as CPR, renal dialysis and ‘artificial’ nutrition and hydration.

- In some circumstances artificial hydration may only prolong the dying process or cause unnecessary distress.

GMC 2009- Draft Consultation
• You must not start or continue a potentially life prolonging treatment if it is agreed that the treatment would not be of overall benefit to the patient. Certainly if it is felt the patient is in the last days of life, when the focus of care is from active treatment to palliation of symptoms.

• However, if a patient requests an intervention and after discussion with the patient the doctor still feels this is inappropriate they do not have to provide the patient with that intervention. But they should discuss their reason for this.
Bioelectrical Impedance

Davis et al, American Journal of Hospice and Palliative Medicine 2009
Dehydration

• Volume depletion refers to fluid losses within extracellular and intravascular compartments
• Most clinical signs of hydration assess extracellular compartment e.g. skin turgor, JVP, BP and pulse
• It is suggested that dehydration in the dying phase refers to intracellular fluid deficits
Changes in intracellular hydration

- Protein wasting in critically ill patients is due to intracellular hydration
- Reasons for this are
  - Metabolic exhaustion which leads to low amino acid transporters
  - Increased tumour necrosis factor
  - Increased inflammatory cytokines
  - Increased oxygen radicals
- This all causes cellular shrinkage and extracellular expansion
### Parameters to measure fluid volume change

<table>
<thead>
<tr>
<th>Parameters</th>
<th>notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in body weight</td>
<td>Multiple factors affect body weight in cancer patients</td>
</tr>
<tr>
<td>Haematological indices e.g. haematocrit, haemoglobin</td>
<td></td>
</tr>
<tr>
<td>Urinary osmolarity</td>
<td>Affected by diuretics, renal function. Both do not give clue to which compartment is most affected by fluid loss</td>
</tr>
<tr>
<td>Urinary specific gravity</td>
<td></td>
</tr>
<tr>
<td>Heart rate and blood pressure</td>
<td></td>
</tr>
<tr>
<td>Bioelectrical impedance analysis</td>
<td>Accurate means of measuring total body water. Rapidly reproducible. Involves measurement of phase angle and resistance</td>
</tr>
</tbody>
</table>
Conclusion

- Cancer reduces intracellular fluid through cachexia and proteolysis
- Hydration may benefit those with extracellular dehydration only and can activate a renin-angiotensin response
Cochrane Review
Good, Cavenagh, Mather, Ravenscroft 2008

- To determine the effect of medically assisted hydration in palliative care patients on their quality and length of life
- 5 relevant studies
- 2 RCTs
- 3 Prospective controlled trials
Cerchietti et al 2000

Hypodermoclysis for control of dehydration in terminal stage cancer
Methods

- Randomised prospective trial
- Patients with terminal cancer consecutively selected
- 50 patients evaluated
- 42 randomised to two groups
- Inclusion criteria: thirst, chronic nausea (nausea for 4 wks or more), delirium (MMSE ≤ 17), renal failure, clinical dehydration, daily fluid intake < 50ml/day
- Exclusion criteria: other uncontrolled symptoms, constipation
### Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Hydration (n=20)</th>
<th>No Hydration (n=22)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>55.8</td>
<td>51.7</td>
</tr>
<tr>
<td><strong>Previous medication (no.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Ranitidine</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>NSAID</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td><strong>MMSE (MEAN +/- SD)</strong></td>
<td>26.8 +/-1</td>
<td>27.9 +/-1.2</td>
</tr>
<tr>
<td><strong>SYMPTOMS (no.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thirst</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Nausea</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Delirium</td>
<td>7</td>
<td>8</td>
</tr>
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</table>
Methods continued

• Assessment carried out at 24 and 48 hours
• Both groups received antiseptic mouth rinse and 2ml water every 30-60 minutes via syringe or soaked gauze
• One group received 1000ml 5% dextrose with the addition of 140mEq/l NACL/day at rate of 42ml/hr
• Main end points: thirst, chronic nausea and delirium.
• Secondary end points: anguish, mood, adverse reactions.
• VAS used to measure thirst, chronic nausea, anguish, mood
## Results

<table>
<thead>
<tr>
<th></th>
<th>Hydration (p value)</th>
<th>No Hydration (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>24 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>Nausea</td>
<td>P&lt;0.012</td>
<td>P&lt;0.027</td>
</tr>
<tr>
<td></td>
<td>P&lt;0.001</td>
<td>N/S</td>
</tr>
<tr>
<td>Thirst</td>
<td>P&lt;0.029</td>
<td>N/S</td>
</tr>
<tr>
<td></td>
<td>p&lt;0.023</td>
<td>N/S</td>
</tr>
</tbody>
</table>

- No significant difference in delirium, anguish or mood
- Only 1 patient in hydration group had a local adverse reaction
- Survival time was approx 4 days in both groups
Association between hydration volume and symptoms in terminally ill cancer patients with abdominal malignancies

Morita et al, Annals of Oncology 2005\textsuperscript{12}
Aim

• Explore systematically the associations between hydration volume, dehydration and fluid retention symptoms in the last 3 weeks of life in terminally ill patients with abdominal malignancies.

• Patients
  • 14 oncology units, 19 palliative care units, 4 home based palliative care programmes in Japan, Aug 2002-Feb 2003
  • Included patients: age >20yrs, life expectancy estimated less than 3 months, incurable malignancy of abdominal origin (not hepatic).
Method

- Multicentre, prospective observational study. Weekly reporting of dehydration and fluid retention symptoms on a structured data collecting sheet.

- After death retrospective recording of symptoms 24hrs before death, communication capacity 3 days prior to death and degree of agitation in the week before death (based on discussion between physicians and nursing staff).

- Patients received usual treatments from their institutions depending on physicians’ clinical decision- not standardised regime.

- Outcomes- dehydration and fluid retention symptoms in the last 3 weeks of life.
Assessment

- **Physical**
  - Moisture of mucous membranes, axilla and sunkeness of eyes (giving total dehydration score)
  - Peripheral oedema - seven regions - thickness was scored
  - Pleural effusion and ascites - detectable / significant
  - Myoclonus, bedsores and bronchial secretions

- **Psychiatric**
  - Items of communication capacity scale, agitation distress scale, memorial delirium scale
Results

- 226 patients
- Mean hydration volume 838 to 1405 ml/day during last 3 weeks (hydration group n= 59) and 200ml/day (non hydration group n=167)
- Dehydration- score increased by 3 or more, significantly higher in non hydration group (35% vs 14% p=0.0020)
- Oedema – significantly higher in hydration group (44% vs 29% p=0.039) but not significant after controlling for covariates
Results cont

- Ascites- significantly higher in the hydration group (29% vs 8.4% p=<0.001)
- Pleural effusion- no significant difference after controlling for covariates
- No difference in bronchial secretions
- No difference in agitation, delirium or communication scores
- No difference in bedsores or myoclonus
- No significant difference in blood urea.
Discussion

• Oedema, ascites and pleural effusions could worsen in hydration group (sig difference in ascites) therefore overhydration could deteriorate fluid retention symptoms
• Dehydration scores increased in both groups
• No benefit in psychiatric symptoms
• No clear association to secretions
Effects of parenteral hydration in terminally ill cancer patients: A preliminary study

Bruera et al 2005
Participants

• Diagnosis of advanced cancer
• Oral intake <1000ml/day and evidence of mild/moderate dehydration ( <skin turgor subclavicular region >2secs)
• 1+ of : dry mouth, thirst, decreased UO, elevated urea/creatinine ratio
• Age >16yrs
• 51 recruited
Method

• Randomised, controlled, double blind
• Duration- 2 days
• Multicentre
• 1000mls N saline vs 100mls N saline over 4 hrs for 2 days (iv/s/c)
• Outcome- Global assessment of benefit as determined by physician and pt on day 2
• Target symptoms (numerical rating scale)
Results

- Treatment group n=28
- Placebo group n=23
- More improvement in sedation and myoclonus in intervention group (P= 0.005 and 0.035) scored on numerical scale
- No difference in fatigue, hallucinations or MMSE
- No statistically sig difference in global assessment between groups
Respiratory tract secretions (RTS) and hydration

• To date no firm evidence to suggest level of hydration influences incidence or severity of respiratory tract secretions in terminally ill patients
• Ellershaw et al. 1995\textsuperscript{14} no correlation of RTS to hydration status, no artificial hydration therapy in any of the study patients
• Wildiers et al. 2002\textsuperscript{15}, observational study about incidence of RTS showed incidence of 23%; low incidence correlated to lower levels of hydration
• Morita et al. 2005\textsuperscript{12}, randomised controlled trial, respiratory tract secretions not primary end point, no connection between RTS and hydration status
Respiratory tract secretions

- However there is evidence that PEG/RIG does not prevent aspiration in patients with advanced illness and may actually increase risk (Finnucane et al, JAMA, 1999 and Gillick MR, NEJM, 2000)

- Further research needed and possibly need to differentiate route of fluid administration at EOL
Summary of evidence

- There is limited evidence that may suggest hydration in the dying phase can reduce myoclonus and sedation.
- There is also evidence to suggest that hydration can worsen symptoms of fluid retention including oedema, ascites and pleural effusions.
- No substantial evidence to say that CAH increases risk of respiratory tract secretions.
Results of audit

Dr Catriona Mayland
Locum Consultant in Palliative Medicine
What is your main place of work?

- Hospice: 33 participants
- Hospital: 23 participants
- Comm: 34 participants
- Mixed: 5 participants
Professional group

- CNS: 44.8%
- Staff Nurse: 27.1%
- Consultant: 7.3%
- NCCG: 3.1%
- SpR/StR: 2.1%
- Other: 14.6%

Percent
In which ICN do you work?
Do you have policies for CAH?
What would influence your decision to commence CAH?

- Biochem abn.
- Difficulty swallowing
- Thirst
- Dry mouth
- Conscious level
- Family concern
- HCP concern

Options: Always, Sometimes, Occasionally, Never, Don't know
What would influence your decision **not** to commence CAH?
Is it a multi-professional decision to commence, continue or stop fluids?
In the last days of life, do you continue to monitor bloods to guide use of CAH?

- Always: 1%
- Sometimes: 3.1%
- Occasionally: 19.8%
- Never: 72.9%

Percent
Who would you discuss the issues of providing CAH?
Is the plan regarding CAH documented in the patient record?

![Bar chart showing the percentage of responses for whether the plan regarding CAH is documented in the patient record. The options are: Always (39.6%), Sometimes (28.1%), Occasionally (19.8%), and Never (5.2%).](image)
Has the Mental Capacity Act changed your practice re CAH?

- Free-text comments
  - ‘have always acted in patient’s best interest’
  - ‘more open discussion’
  - ‘better documentation’
  - ‘more aware of need to listen to concerns from patient / family’
Is there a need for clearer guidance about the provision of CAH in our network?
Themes from the free-text comments

1. Review of evidence
   - Clear review of evidence would be helpful e.g. does it improve thirst, confusion. Is the risk of increasing chest secretions a myth?

2. Need for clear guidance
   - Current policies very vague
   - Need for clearer guidance for all members of the MDT – inappropriate referrals to IV team by GP
   - Guidelines need to reflect community and in-patient settings as there are differences
Themes from the free-text comments

3. Wider arena and how it affects our practice
   – recent media publicity
   – the need to discuss the issue more frequently with families and patients
**General principles**

- The provision of oral fluids forms part of basic patient care and should not be withdrawn or withheld.
- Clinically assisted hydration (CAH) includes intravenous or subcutaneous infusion of fluids, administration of fluid through nasogastric tube and administration of fluid through PEG or RIG tube.
- CAH such as intravenous or subcutaneous fluids, has been classified as medical treatment in common law, although this definition has not been universally accepted.
General principles continued

• Blanket policies regarding the use of CAH in dying patients are unhelpful. Decisions regarding hydration should be individualised to each patient.
• There is some evidence to suggest that the pathophysiological mechanisms for dehydration and the effects of rehydration by CAH may be different in dying patients than in patients without advanced illness.
• There is some evidence that CAH may aggravate oedema, ascites and pleural effusions in patients with advanced cancer.
• There is some evidence to suggest that CAH may reduce myoclonus and sedation at the end of life.
• More robust evidence regarding the benefits, burdens and risks of CAH in the dying phase is needed.
• There is no robust evidence to date to suggest that CAH causes or aggravates respiratory tract secretions in dying patients.
General principles continued

• The Mental Capacity Act 2005 highlights important factors that should be considered when making decisions about hydration at the end of life
Guidelines

• All patients are entitled to food and drink as part of basic care. You should satisfy yourself that oral hydration is being provided in a way that meets the patients’ needs and that any problems such as swallowing problems or risk of choking are being managed effectively.

• Decisions surrounding the use of CAH should be discussed with the multi-professional team, patients and relatives in accordance with the Mental Capacity Act.

• Decisions regarding the use of CAH should take into consideration the potential harms and benefits to the patient.
Guidelines continued

• Hydration decisions should be individualised and include the participation of the family, patient and other disciplines

• A time-limited trial of CAH to assess if it improves symptoms may be appropriate in some patients
Standards

• Decisions surrounding the use of CAH in dying patients should involve the multi-professional team and be clearly documented in the case notes

• If CAH is continued in the dying phase, the appropriateness and benefits of its use should be reviewed on a daily basis

• If artificial hydration is continued in the dying phase, a rate of 1 litre over 24 hours intravenously or subcutaneously (or via a PEG/PEJ) is the recommended regimen
Any questions?
References

1. Reilly P. Moral obligations. Modern healthcare 2004;34:4
References


References


References

