Hydration at the End of Life: A systematic literature review and audit of current practice

November 12th 2015
Dr Alison Coackley- Consultant in Palliative Medicine, Clatterbridge Cancer Centre
Dr Catherine Hayle- Consultant in Palliative Medicine, Wirral University Hospital Trust
Dr Aileen Scott- STR Palliative Medicine
Dr Najia Shah- STR Palliative Medicine
Dr Emma Longford- STR Palliative Medicine
Ann Griffiths- Clinical Nurse Specialist Clatterbridge Cancer Centre
Claire Cadwallader- Clinical Nurse Specialist Clatterbridge Cancer Centre
WITH THANKS TO:

Patient Participation Representative
  Angela Fell

External Reviewers
  Dr Ashique Ahamed, Consultant in Palliative Medicine
  Central Manchester University Hospitals

  Dr Susan Salt, Consultant in Palliative Medicine
  Trinity Hospice, Blackpool
Guidelines for the Use of Hydration in Dying Patients

Dr Heino Hugel, Dr Catriona Mayland, Dr Sarah Fradsham, Agnes Noble, Jeanette Renshaw

September 2012
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• The provision of oral fluids forms part of basic patient care and should not be withdrawn or withheld.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 or administration of fluid through PEG or RIG tube.

• CAH has been classified as a medical treatment in common law, although this definition has not been universally accepted.
GENERAL PRINCIPLES

• Blanket policies regarding the use of CAH in dying patients are unhelpful and not ethically justified. 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.
GENERAL PRINCIPLES

- There is some evidence that CAH may worsen 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.
GENERAL PRINCIPLES

• There is no robust evidence to date to suggest that CAH causes or worsens respiratory tract secretions in dying patients.

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

• 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 patient’s needs and that any problems such as swallowing problems or risk of choking are managed effectively. [Level 4]
<table>
<thead>
<tr>
<th>GUIDELINES</th>
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<tbody>
<tr>
<td>• Decisions surrounding the use of CAH should be discussed with the multi-professional team, patients and relatives in accordance with the Mental Capacity Act. [Level 4]</td>
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<tr>
<td>• Decisions regarding the use of CAH should take into consideration the potential harms and benefits to the patient. [Level 4]</td>
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• Hydration decisions should be individualised and include the participation of the family, patient and other disciplines where appropriate. [Level 4]

• A time-limited trial of CAH to assess if it improves symptoms may be appropriate in some patients i.e. 1 litre over 24 hours. [Level 4]
GUIDELINES

- If CAH is not deemed appropriate, a daily assessment of the patient’s comfort measures should be performed. [Level 4]
- Regular mouthcare should be performed at all times, whether CAH is considered or not. Families should be encouraged to participate in this as they feel comfortable. [Level 4]
1. Decisions surrounding the use of CAH in dying patients should involve the multi-professional team and should be clearly documented in the case notes or LCP. [Grade D]

2. If CAH is continued in the dying phase, the appropriateness and benefits of its use should be reviewed on a daily basis and assessments documented. [Grade D]

3. If CAH is continued in the dying phase, a rate of 1 litre over 24 hours intravenously, subcutaneously or via PEG/PEJ is the recommended regimen. [Grade D]

4. If CAH is not continued or commenced in the dying phase, the appropriateness of this decision should be reviewed on a daily basis and assessments documented. [Grade D]
Systematic Literature Review

August-October 2015
LITERATURE REVIEW

• Cochrane Review 2014
• NICE guidelines 2015 – Care of the dying adult
• NICE guidelines 2013 – Intravenous fluid therapy in adults in hospital
ADDITIONAL SEARCH

- Medline, EMBASE and CINAHL databases March 2014 – Aug 2015
  125 abstracts
  14 articles
  All Excluded as not relevant to clinical question
COCHRANE REVIEW 2014
Medically assisted hydration for adult palliative care patients

Objective:
To determine the effect of medically assisted hydration in palliative care patients on their quality and length of life.
Searched for RCTs or prospective controlled studies of medically assisted hydration in dying patients

- 6 relevant studies
  - 3 RCTs (222 participants)
  - 3 Prospective controlled trials (360 participants)
- Small number of studies therefore quantitative analysis not possible
COCHRANE REVIEW 2014

• Included
  – Palliative care patients with limited prognosis and where focus was QOL
  – Any life-limiting illness
  – Adults in any setting
• Not limited to terminal phase
• Excluded
  • Medically assisted hydration due to:
    • Peri-operative hydration
    • Chemotherapy
    • Radiotherapy
Interventions
- Non-nutritional fluids
- SC, IV or enterally

Comparisons
- Placebo
- No intervention
- Usual treatment or supportive care

Outcome measures
- Primary – QOL on any measure
- Secondary
  - Survival
  - Adverse events
COCHRANE REVIEW 2014

• Very different outcomes measured in each study
  – State of consciousness
  – Overall benefit (as determined by physician and participant)
  – Change in sum of 4 dehydration symptoms (fatigue, myoclonus, sedation, hallucinations)
  – Thirst, nausea, delirium, MMSE
  – Dehydration, fluid retention, delirium, myoclonus, bedsores, agitation, communication
  – Multiple physical symptoms and cognition
## RANDOMISED CONTROLLED TRIALS

<table>
<thead>
<tr>
<th></th>
<th>Bruera 2005</th>
<th>Bruera 2013</th>
<th>Cerchietti 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methods</strong></td>
<td>Double-blind&lt;br&gt;Truly random&lt;br&gt;2 days duration</td>
<td>Double-blind&lt;br&gt;Multi-centre</td>
<td>Method of randomisation and blinding status&lt;br&gt;unclear.&lt;br&gt;48 hours duration</td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>51 patients</td>
<td>129 patients</td>
<td>42 patients</td>
</tr>
<tr>
<td><strong>Interventions</strong></td>
<td>1000ml (28) or 100ml (23)&lt;br&gt;0.9% saline over 4h&lt;br&gt;IV (12) or SC (37)</td>
<td>1000ml or 100ml&lt;br&gt;0.9% saline over 4h –&lt;br&gt;all SC</td>
<td>1000ml 5% dextrose&lt;br&gt;at 42ml/hr SC or no fluids</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>No significant difference in&lt;br&gt;overall benefit or adverse effects.&lt;br&gt;More improvement in sedation and myoclonus in intervention group.</td>
<td>Night-time delirium deteriorated more in placebo group.</td>
<td>Chronic nausea significantly better in hydration group.&lt;br&gt;1 adverse event.</td>
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## PROSPECTIVE CONTROLLED TRIALS

<table>
<thead>
<tr>
<th></th>
<th>Morita 2005</th>
<th>Viola 1997</th>
<th>Waller 1994</th>
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</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>226 patients</td>
<td>66 patients</td>
<td>68 patients</td>
</tr>
<tr>
<td><strong>Interventions</strong></td>
<td>59 pts in Hydration group – form of fluid unclear; &gt;1000ml per day</td>
<td>SC fluids titrated to needs (median 1000ml per day) or no fluids</td>
<td>Oral hydration (55 pts) or IV 1-2 litres per day (13 pts)</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>Dehydration significantly higher in non-hydration group. Effusion, oedema and ascites significantly higher in hydration group.</td>
<td>No statistical analysis to determine if any significant differences</td>
<td>No significant difference in state of consciousness</td>
</tr>
</tbody>
</table>
• Bruera 2005:
  – Sedation and myoclonus greatly improved
  – Total scores for sedation, fatigue, myoclonus, hallucinations improved
  – Physician-perceived benefit (but not participant-perceived)
• Bruera 2013:
  – Night-time delirium worse in control group at Day 4 (but not Day 7)
  – No difference in survival
• Cerchietti 2000:
  – Chronic nausea improved
RESULTS - ADVERSE EVENTS

• Cerchietti 2000
  – 1 participant with erythema and pain at puncture site

• Morita 2005
  – Dehydration significantly higher in non-hydration group
  – Significantly higher fluid retention symptoms in hydration group
    • Pleural effusion, peripheral oedema, ascites
• No significant benefit in use of medically assisted hydration
• However insufficient good-quality studies to inform definitive recommendations for practice
  – low participant numbers and methodological difficulties
IMPLICATIONS FOR RESEARCH

• Difficulties of consent, recruitment and retention
• Participant groups
  – Including patients from all settings
  – Prognosis or performance status
  – Non-cancer diagnoses
  – Diagnostic criteria for hydration status
• Determining the optimum route and dose of fluid
• Clearly defined and clinically relevant outcomes – symptoms, survival and adverse outcomes
Key Points from Draft NICE Guidance on Care of the Dying Adult
July 2015
Focus on the importance of regular mouth care and providing oral hydration where possible.

Review need for clinically assisted hydration daily with patients and their families/carers.

The risks and benefits must be discussed.

Concerns are addressed before starting CAH.

No evidence that CAH will prolong life or the dying phase.
CONSIDERATIONS BEFORE STARTING CAH

• Wishes and preferences of the patient
• Level of consciousness
• Swallowing difficulties
• Level of thirst
• Risks of fluid overload
• Whether recovery from dying is possible
THERAPEUTIC TRIAL OF CAH

- Consider a trial if distressing symptoms of delirium or thirst
- Monitor daily for changes in signs or symptoms
- Monitor daily for evidence of benefit or harm
- Stop if evidence of harm
- Continue if evidence of benefit
NICE Guidance on Intravenous Fluid Therapy in Adults in Hospital December 2013
If intravenous fluids needed for routine maintenance the following is advised:

- 25-30ml/kg/day of water advised
- 50-100g/day of glucose
- 1mmol/kg/day of potassium sodium and chloride

Less fluid advised if:

- Elderly
- Frailty
- Renal impairment
- Malnourished
Establish systems to formally assess HCPs in:

- Understanding physiology of fluid and electrolyte balance
- Assessing patient needs
- Assessing risks and benefits of iv fluids
- Prescribing and administering iv fluids
- Monitoring patient response
- Evaluating and documenting changes
REFERENCES


• Care of the dying adult: NICE guideline short version DRAFT, July 2015

• Intravenous fluid therapy in adults in hospital, NICE, December 2014
UPDATED SUGGESTED GUIDELINE RECOMMENDATIONS AND STANDARDS
Reduced oral intake is common in the dying phase. Decisions regarding the use of clinically assisted hydration (CAH) are complex and often emotive for patients, families and health care professionals.\(^1,2\) The absence of randomised controlled trials focusing on the risks and benefits of CAH further complicates decision-making.

Clinically assisted hydration (CAH) includes intravenous or subcutaneous infusion of fluids, administration of fluid through nasogastric tube or administration of fluid through percutaneous endoscopic gastrostomy (PEG) or radiologically inserted gastrostomy (RIG) tube.\(^2\)
The provision of oral fluids forms part of basic patient care and this aspect of care should not be withdrawn or withheld from the dying patient without explicit documentation of patient choice or best interest decision making. ¹

Oral hydration should be provided taking into account any swallowing difficulties.
MOUTH-CARE

- Regular mouth-care should be performed and documented as part of basic care of dying patients whether CAH is considered or not. Families should be encouraged to participate in this as they feel comfortable. (Cross reference Provision of Oral Care Guidelines)
ASSESSMENT & DECISION MAKING REGARDING CAH

• Blanket policies regarding the use of CAH in dying patients are unhelpful and not ethically justified. These decisions should be individualised to each patient and reviewed daily by the clinical team. Decisions regarding CAH should involve assessment of the presence or absence of: thirst, respiratory tract secretions, fluid overload (i.e. pulmonary oedema, peripheral oedema, ascites, pleural effusions) and clinical dehydration.

• Communication with and involvement of the multi-professional team, patients and relatives in these discussions and decisions is essential.

• All decisions regarding CAH should be made in accordance with the principles of the Mental Capacity Act 2005.³
Although robust evidence regarding the benefits, burdens and risks of CAH in the dying phase is lacking, potential risks and benefits should be discussed with patients and families.\(^2,4\)

There is some evidence that CAH may worsen oedema, ascites and pleural effusions in patients with advanced cancer.\(^5\) There is also some evidence to suggest that CAH may reduce myoclonus and sedation at the end of life.\(^6\)

There is no robust evidence to date to suggest that CAH causes or worsens respiratory tract secretions in dying patients. Additionally there is no evidence to date that CAH prolongs life or the dying phase.\(^2\)
Following careful discussion with patients and families, a time-limited trial of CAH may be appropriate in some patients. A recommended regimen would be at least 1 litre over 24 hours with consideration of reduction where severe malnourishment is present. Daily assessment of benefit or harm should be made.

There is no evidence that supplementation of fluids with potassium or re-assessment of blood tests is of benefit in the dying patients.
It is essential that health care professionals working in units caring for dying patients have an understanding of the physiology of fluid and electrolyte balance and are trained in assessing patients needs, prescribing and administering IV fluids and evaluating and documenting changes.
1. The need for CAH in dying patients should be reviewed daily. [Grade D]

2. Decisions surrounding the use of CAH in dying patients should involve the patient, family and multi-professional team and should be clearly documented. [Grade D]

3. If CAH is used in the dying phase, a rate of at least 1 litre over 24 hours intravenously, subcutaneously or via PEG/PEJ is the recommended regimen. [Grade D]

4. Units caring for dying patients should ensure that all staff are competent in the assessment and delivery of CAH. [Grade D]
REFERENCES

1. Leadership Alliance for the Care of Dying People 2014, One Chance to Get it Right. tinyurl.com/one-chance-right
2. Care of the dying adult: NICE guideline short version DRAFT, July 2015
7. Intravenous fluid therapy in adults in hospital, NICE, December 2014
DISCUSSION POINTS

Mouth-care- how often should regular be?

Which fluids should be recommended if any?

Should IV supplements be commented on?

Questions?