Cancer Pain Management at a Specialist Palliative Care Inpatient Unit: An Audit

Sadhbh Dalton, Cormac Jones, Robert Power, Des McMahon, Michelle Barrett, Pauline Uí Dhuibhir and Declan Walsh

Cancer pain is prevalent and burdensome in a palliative care setting and managed pharmacological and through non-pharmacological means. There is variance in how effectively cancer pain is managed, and to address this the 'Pharmacological Management of Cancer Pain in Adults' was published by the Department of Health in November 2015. To assess adherence to the standards defined by the 'Pharmacological management of Cancer Pain in Adults'. Our study audited the implementation of these guidelines regarding recording pain, administering analgesics, dealing with side effects and opioid toxicity. Three researchers reviewed the charts of 100 consecutive cancer admissions between 01/09/17 and 31/12/17 in a Dublin hospice. This Information was used to assess adherence to 15 audit standards. Of the 15 audit standards examined, 9 met this goal of 100% compliance. 3 of the remaining 6 standards had a compliance equal or greater than 90%. There is a high degree of compliance in the assessment and management of cancer pain. Where compliance is not 100% clinical practice should be reviewed or feedback given on the audit tool. Future research should focus on completing the audit cycle, and further audit in a community or acute hospital setting.

Background

Cancer Associated Pain

Pain is defined as the unpleasant sensory or emotional experience associated with actual or potential tissue damage or described in terms of such damage (Merskey et. al, 1986). Pain is subjective, but the patient is the prime assessor of their own pain. It can be graded by predefined categories and treated accordingly. Pain affects 80% of cancer patients with advanced metastatic disease (Cleeland et. al,1994). Over 1/3 of cancer pain is graded as moderate or severe (Van der Beuken et. al, 2007). Cancer pain can be acute, chronic or acute-on-chronic known as breakthrough or incident pain (Watson et. al, 2009). Cancer pain can be categorised as neuropathic or nociceptive. Neuropathic pain is a result of nerve damage to the central or peripheral nervous system and is described as shooting, burning or stinging. Nociceptive pain may be somatic (bone and soft tissue), or visceral (including hollow viscus) (Watson et. al, 2011). Psychological, social and spiritual distress can impact the individual's pain experience and in severe distress can culminate in 'total pain.' Hence these dimensions must be addressed as part of any comprehensive pain assessment (Twycross et. al, 2009).

Analgesic Use

Analgesics are used to treat cancer pain. The WHO (1986) developed a three step 'analgesic ladder' to guide the treatment of cancer pain according to its severity (Table 1).

As cancer pain is often moderate or severe in advanced disease, opioids are the most commonly prescribed analgesic. It is recommended that both background (long-acting) and breakthrough (short-acting) preparations are prescribed. Oral administration is the preferred route, but if not tolerated, subcutaneous or transdermal administration is employed (Radbruch et. al, 2011). If pain control is inadequate or side effects intolerable, opioids can be switched to an alternative opioid from the same ladder step. This is called opioid rotation and occurs in 20-44% of cancer patients (Sarhill, 2001).

Opioid side effects include constipation, delirium, dry mouth, nausea, neuropsychological symptoms, respiratory depression and sedation (Stone et. al, 2011). Symptoms of toxicity include delirium, hallucinations, myoclonus, respiratory depression and may be precipitated by hepatic or renal impairment (Watson et. al, 2011). There is also evidence that improved cancer pain management can increase quality of life by more than the pain reduction alone. This is due to 'symptom clustering,' whereby pain can worsen depression, fatigue and other symptoms in a cancer setting (Aktas et. al, 2010).

Despite the significant burden of cancer pain, there is variation in how adequately pain is managed. Estimates of unsatisfactory pain relief range from 12% in Germany (Zech et. al, 1995) to 43% in Italy (Cascinu et. al, 2003). Due to this prevalence, importance and variation, development of a national clinical guideline on cancer pain management was necessary.

Audit Standards

Work began on The National Clinical Guideline No. 9, entitled 'Pharmacological management of Cancer Pain in Adults' in 2011. A formal literature review of publications between 01/01/2011 and 31/12/2014 was undertaken, and the evidence was graded from level 1-5 according to SIGN 106 guidelines, The National Comprehensive Cancer Network guidelines, Palliative Adult Network Guidelines (3rd edition) and Oncology Nursing Society guidelines. After extensive consultation, 42 recommendations were made and the strength of recommendation was graded from A-D based on the evidence level. The Guidelines were devised in November 2015 and are due for formal review in 2018 (Lucey et. al, 2015).

Need for Audit

The Guidelines include an audit recommendation, which includes 18 audit questions based on the 42 evidence-based conclusions. Prospective audit is recommended where possible. The National Clinical Effectiveness Committee website includes an electronic audit tool, baseline assessment and action plan template which were also used. We used the Guideline Audit Tool to evaluate pain assessment and management at Our Lady's Hospice and Care Services (OLH&CS). To the best of the authors' knowledge, this is the first audit on this topic carried out since guideline publication. We conducted the audit by means of retrospective chart review and made some minor alterations, namely defining 'poor controlled pain' and 'uncontrolled pain'.

Methods

Objective: To audit cancer pain assessment and management in OLH&CS according to the 18 audit standards specified by the National Clinical Guideline (Appendix 1).

Literature review

A PubMed search was conducted to identify the recent literature in relation to opioid toxicity and side effects from 31/12/2014

WHO analgesic ladder	Score on numerical rating scale	Analgesic of choice
Step 1: mild pain	1 to 2 out of 10	Non-opioid (Paracetamol/NSAID) +/- Adjuvant
Step 2: mild to moderate pain	3 to 6 out of 10	Weak opioid (Codeine/ Tramadol*) +/- Non-opioid +/- Adjuvant
Step 3: severe pain	7 to 10 out of 10	Strong opioid (Morphine sulphate/ Oxycodone/ Hydromorphone/ Fentanyl) +/-Non-opioid +/- Adjuvant

Table 1: WHO analgesic ladder (Lucey et. al, 2015).

(when the Guidelines were published) to March 2018. MeSH search terms "cancer pain" and "opioid toxicity" yielded 186 articles. 'Cancer Pain' and symptoms of 'Pruritis', 'Nausea', 'Delirium' and 'constipation, yielding 42 articles.

Sampling and Data collection

Three student researchers conducted a retrospective chart review of 100 consecutive cancer patients. The healthcare charts of patients admitted to the inpatient palliative care unit from 01/09/17 to 31/12/17 were examined.

The Guideline does not define 'poorly controlled pain' which we defined as three doses of PRN opioid over 24 hours required, for more than three days in a row.

The Guideline also did not define moderate to severe hepatic impairment. We defined this as altered liver function tests, as well as signs of encephalopathy, jaundice, or ascites (Watson et. al, 2011).

The most recent admission in the patient healthcare records (clinical narrative, admission proforma/notes and medication Kardex) was scrutinised to establish documentary evidence of the 18 standards. The audit timeframe was seven days from the first reported episode of pain. All relevant data was recorded onto an audit proforma. Patient demographics (age, gender, primary cancer diagnosis and reason/outcome of admission) were recorded. Whether an admission proforma was used or not was also recorded.

Each chart required 30 minutes to examine and was checked once, while two clinicians reviewed a sample of 20 charts to check consistency. The 100 charts required 35 hours between the three student investigators.

Ethical consideration

The OLH&CS Healthcare Audit Committee reviewed and approved the project proposal.

Statistical analysis

Data was recorded, analysed and presented using Microsoft Excel.

Results

Demographics

100 admissions were reviewed in the audit. Of these, 45 were male and 55 female. The median age was 70, range 21-94. 59 of the admissions had an admission proforma completed, while 41 did not. Patient demographics are presented below (Figures 1-3).

Discussion

Compliance with audit standards

The National Clinical Programme for Palliative Care recommends compliance of 100%. Of the 15 audit standards examined, 9 met this goal. This reflects a high level of adherence to the Cancer Pain guidelines.

Use of admission proforma

Use of an admission proforma improved compliance to certain standards. This includes audit standard 3, where proforma use increased the assessment of anxiety, depression or spiritual distress from 72% to 100% (figure 3). In audit standard 9, use of a proforma improved delirium assessment as a sign of opioid toxicity from 62% to 80%.

Audit standards not met

Audit standards 1, 4, 9, 10, 11, 14, 17 were not fully met. Clinical practice may have in fact met the standard, but this was not possible to determine from the documentation analysed. Moreover, there may have been good clinical reasons to depart from the recommended audit standard. Relating to the audit tool itself, a yes/no audit question format proved difficult to apply to certain standards. For example, some audit standards (13, 14, 17) asked that a certain intervention be "considered". It is possible that an intervention was considered and decided against, but this could not be accounted for in the yes/no format.

Audit standards 1-4: Principles of Pain Management

In this category audit standards 1 and 4 were not met. Audit standard 1 had a very high compliance rate of 98%. Therefore, there is scope for review in the implementation and re-audit components of the audit cycle to see if

100% is achievable. Audit standard 4 had a compliance rate of 87%.

However, this relied on our definition of 'consecutive reports of poorly controlled pain' which was not defined in the guidelines. There also may be clinical reasons why in individual cases an opioid increase/addition or another analgesic was not appropriate.

Audit standards 5-12: Opioids

In this category audit standards 9, 10 and 11 were not met. Audit standard 9 had a high compliance of 97% and it is hoped that on completion of the full audit cycle that this will increase to 100%. Audit standard 10 (ii) was not met (Figure 5). These findings will be of interest to the clinical team of OLH&CS and it may be appropriate to review how such symptoms are recorded. Audit standard 11 had a compliance of 69% however there may be good reasons why this does not meet the standard. For example, it is possible that it was felt clinically that further opioid titration was more appropriate than opioid rotation.

Audit standards 13-16: Non-opioid Pharmacological Management

In this category audit standard 14 was not met, with a compliance of 5%. There are several possible reasons for this low adherence. The audit standard recommends that bisphosphonates should be 'considered' but insufficient

evidence precludes use as first line therapy. As discussed above, it is possible that bisphosphonates were considered for use but decided against. Also, the question from the audit tool only asked whether bisphosphonates were prescribed or not, which may not have accurately represented the audit standard.

Audit standards 17-18: Renal and Hepatic Impairment

In this category audit standard 17 (ii) and (iii) were not met, with compliance of 90% and 75% respectively. As discussed above, we were limited to checking what medicine was prescribed, rather than considered. We also could only check if dose reduction was done, rather than considered.

Limitations of Research

One limitation that arose during the auditing process was the issue of documentation. Particularly for the assessment of pain it is likely that our results do not reflect how pain was actually assessed, only what was recorded in the healthcare record. There were also difficulties locating the relevant data in each individual record.

There were challenges with the audit tool itself. Lack of clarity with terms such as "considered" rather than documented or recorded lead to subjective interpretations of the questions which may lead to problems with re-audits in the future.

This audit was intended to assist healthcare professionals to reflect on their own practice. Therefore, the clinical audit guidelines are written assuming that those carrying out the audit are clinicians and our status as medical students was a limiting factor.

Clinical Implications

It appears the consistent use of a proforma on admission can improve either documentation or assessment of pain and opioid toxicity (Figure 3). This is particularly true with anxiety, depression, or spiritual elements to pain, in addition to delirium as a sign of opioid toxicity. The proforma itself may be modified to include a more structured pain assessment under the 8 criteria, as well as a focused assessment on sedation.

In areas where compliance was less than 100%, it is important to examine if practice needs to be reviewed or if feedback on the audit tool may be more appropriate. In some standards such as audit standard 3 practice may need to be reviewed or documentation improved. For others, like audit standard 14 feedback on the audit tool may be more beneficial.

Research Implications

To the best of the authors' knowledge, this is the first audit to be completed based on these guidelines. This is useful for future elements and iterations of the audit cycle as it outlines some shortcomings of the included audit tool. A future study could audit the same guidelines, but in a community or acute hospital setting instead of a hospice. This would gain insight into the compliance with standards like audit standard 2, which was not possible in this study.

Conclusion

After auditing the cancer pain management at this specialist inpatient palliative care unit, the research team can conclude:

1. There is a high degree of compliance of OLH&CS in the assessment and management of cancer pain.

2. Where compliance not 100%, clinical practice should be reviewed or feedback given on the audit tool.

3. Future research should focus on auditing the same guidelines but in a community or acute hospital setting. This would investigate compliance with standards that could not be assessed in OLH&CS.

4. The audit cycle should be completed by a second chart review after the results of this study have been considered and an action plan put in place.

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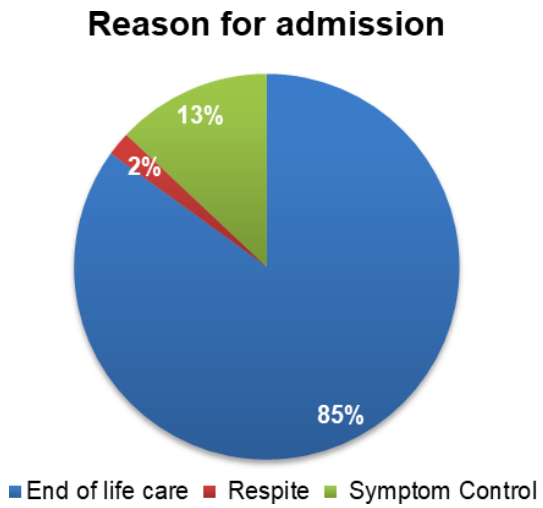

Figure 1: Reason for patient admission

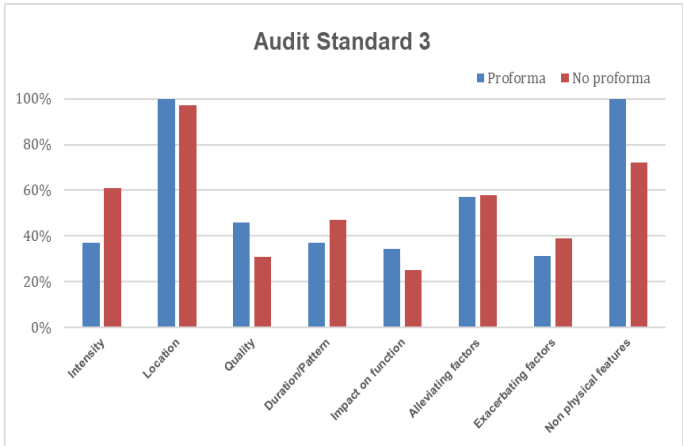

Figure 4: Audit Standard 3 Compliance. 'Non-physical features' refers to the presence of anxiety, depression or spiritual distress.

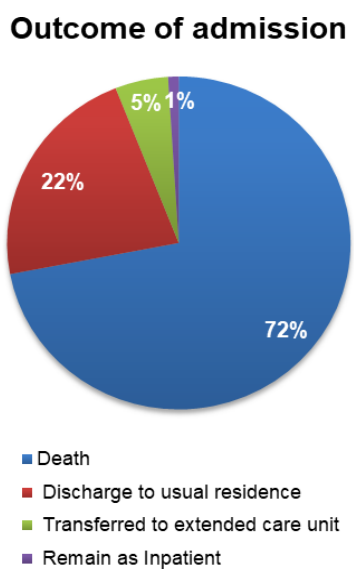

Figure 2: Outcome of admission

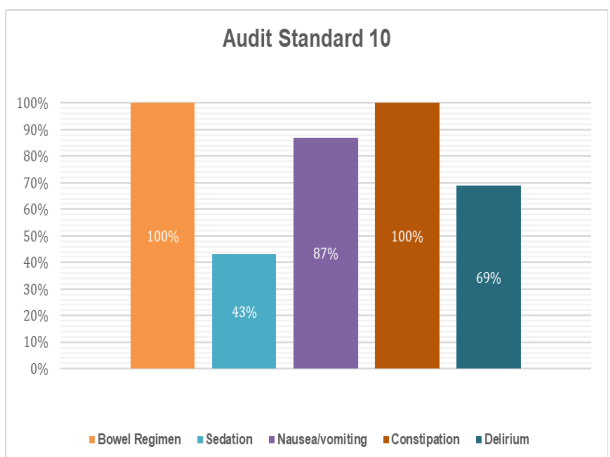

Figure 5: Audit Standard 10 Compliance.

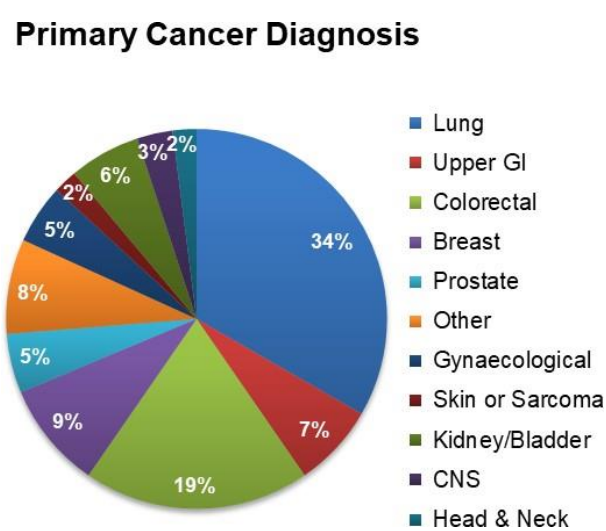

Figure 3: Other diagnoses: mesothelioma myeloma, lymphoma, thyroid carcinoma.

Appendix 1: Audit standards

	AUDIT STANDARDS
	Address physical, psychosocial, emotional and spiritual domains
	Patient given appropriate information about pain management encouraged to participate.
	Pain assessment to include: • Intensity • Location • Quality • duration/pattern • impact on function • exacerbating factors • relieving factors • presence of anxiety, depression or spiritual distress
	Pain managed in accordance with the WHO cancer pain relief guidance. a. Poorly controlled pain defined as ≥3 breakthrough opioid doses in 24-hours
	Weak opioids for mild/moderate pain +/- non-opioid analgesic. Unless specific patient-related issues, use codeine and codeine/paracetamol combinations in preference to tramadol or tapentadol.
	Oral morphine sulphate, hydromorphone and oxycodone for moderate to severe pain. Consider opioids with lower acquisition costs when all other costs are equal.
	Oral route if practical and feasible. Other options: subcutaneous, intravenous, trans mucosal, transdermal, topical and spinal routes.
	Transdermal route suitable for stable pain. Titrated to adequate pain relief with oral/parenteral opioid pain prior to initiation of transdermal patch. Prescribe breakthrough medication also.
	When starting strong opioids, offer patients regular oral morphine, with rescue doses of oral immediate-release morphine for breakthrough pain.
	Anticipate, monitor & manage opioid side-effects
	Opioid rotate if pain poorly controlled, or side-effects intolerable.
	Evidence-based dose conversion ratios to apply. Dose titration as needed.
	For neuropathic pain, consider anti-epileptic and antidepressant medications. Monitor side effects.
	Consider bisphosphonates for pain associated with bone metastases (Limited evidence)
	Methadone may be used moderate or severe pain. (Specialist advice only)
	Spinal opioids require specialist input
	Renal impairment: Use opioids with caution, but don't delay use. Consider reduced doses/frequency. Specialist advice in moderate/severe impairment. Monitor for toxicity. Safest opioid for Stage 4 or 5 kidney disease: Alfentanil and fentanyl (estimated glomerular filtration rate <30 ml/ min/1.73 m^2). Paracetamol is non-opioid of choice for mild/moderate pain. Adjuvant analgesics may require dose adjustment.