The use of bedside ultrasound and community-based paracentesis in a palliative care service

Amanda Landers MBChB, FRACP; Bridget Ryan RN

Introduction

People with advanced disease frequently suffer from multiple symptoms at the end of life. They may be required to present repeatedly to tertiary or secondary settings for review, investigation and procedures, including treatment for ascites. This can become very taxing and a burden on their time and energy. Palliative care focuses on quality of life and meaning for patients with a life-limiting illness.

In New Zealand, specialist services provide support, treatment and advice for primary care providers dealing with complex palliative care cases, mainly in the community and sometimes in inpatient settings. Nurse Maude Hospice and Palliative Care Service is a community-based, charitable organisation, providing specialist community palliative care to patients in Christchurch and the Canterbury region. Annually, the organisation receives over 1500 referrals and provides over 100,000 hours of palliative care services to patients. It also admits approximately 320 patients to the Nurse Maude Hospice each year. Services tailored to providing care close to home are constantly evolving within current international health systems and are seen as a benefit for all.

Management of ascites in the community setting

A challenge faced by those providing palliative care in the community includes the symptomatic management of abdominal ascites, which has usually required hospitalisation for both investi-
WHAT GAP THIS FILLS

What we already know: Paracentesis is a procedure used in malig-
nant ascites for palliation of some symptoms. It is mainly performed in the hospital setting. Ultrasound guidance is used more frequently for placement of the drains. More portable options now exist, which may be of use in the community.

What this study adds: The use of a hand-held ultrasound machine was utilised by the Nurse Maude Hospice and Palliative Care Service for patients with ascites to determine the need for paracentesis and also to place the drains safely. This included in the home environment, suggesting primary care could consider offering this service.
prompted discussion about the disease progression with the patient and family.

A total of 25 ultrasounds (25/41; 61%) were completed at home and nine of these patients went on to have paracentesis. In the hospice, 10 (10/41; 24%) of the ultrasound scans demonstrated fluid resulting in five ascites drains. Of the five (5/41; 12%) scans completed for patients in residential care, three showed fluid on the scan and had drainage performed. One of the remaining cases drained was seen in an undocumented location and the other in the Nurse Maude Hospice outpatient clinic. There were no major complications, although one procedure did not obtain any fluid as discussed previously and it was abandoned. The amount of fluid drained ranged from 400 mL to 5 L.

The clinical notes reported relief of symptoms in eight patients of the 17 who received ascites drainage. This may under-represent the benefit because of suboptimal documentation. In the other 11 patients, it was not documented whether or not the drain was beneficial.

Discussion

This report illustrates the potential usefulness of bedside ultrasound prior to paracentesis in the community setting. It also provides a foundation for other primary care teams considering offering this service. Ultrasonography does require training to become proficient enough to be of use. One of the operators in this study undertook a one-day course directed at general practitioners and non-radiology specialists.

Multiple patients benefited from the scans being done in a convenient manner, with less disruption to the patient and family. It could also be argued that simple paracentesis does not require imaging, but it does allow the practitioner to have more confidence in proceeding. However, Patel et al. evaluated the complications associated with paracentesis, comparing the use of ultrasound with blind procedures. They found significantly less adverse events, such as post-drainage infection and haematoma, in the ultrasound group. In situations where fluid was not present, a conversation about prognosis and disease progression was sometimes facilitated and

had a malignancy, with ovarian (seven patients) and pancreatic (four patients) cancers being the most common.

Location of patient having ultrasound and drainage

Of the 41 scans performed for 32 patients, fluid was present in 19 cases. Drains were placed as outlined in the methods section in 17 of these 19 cases. In one patient, the ultrasound showed loculated fluid and paracentesis was performed. No fluid drained. In another patient, fluid was seen on the ultrasound scan but the patient requested hospital review prior to any drainage. Ascites was not seen in 22 of the scans and this often
a procedure avoided. Families could visually see the screen and understand the decision-making.

The use of bedside scanning saves time, and reduces patient and carer burden. The ultrasound may also have other uses not yet explored, particularly as the operators become more advanced and experienced. Imaging complements good history taking and physical examination.

This paper has several limitations. The number of patients included in the study is relatively small and the data from patient charts collected retrospectively. The documentation was somewhat poor, particularly with regard to benefit of paracentesis to the patient. It could also underrepresent the complication rate, although these are more likely to be documented by health professionals. It is also the experience of one centre and two operators. It did not include patient feedback. However, it highlights the novel use of technology already in existence to offer services in the home and wider community.

Within our service, it has now become an established practice for ultrasound prior to paracentesis, with plans to expand the number of operators. This will ensure its ongoing use, increase its availability and, potentially, patient benefit.

REFERENCES

ACKNOWLEDGEMENTS
The authors would like to thank Jackie Walker, Research Nurse with the New Zealand Institute of Community Health Care, and other members of the Institute for their assistance with this study.

COMPETING INTERESTS
None declared.