

Evaluation of a Modified Proprietary Electronic Patient Reported Outcome Measures Tool for Monitoring Toxicities Associated with Systemic Chemotherapy

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Background

Over the past 30 years, advances in systemic anti-cancer therapy have allowed considerable improvements in both patient survival rates and their quality of life. The price of these improvements is the wide range of possible toxicities caused by the treatments, some of which are severe. Traditional reporting mechanisms for capturing these toxicities involve retrospective communication with the clinical team. This occurs upon resolution of symptoms or during instances of toxicity-related emergency admission or hospitalisation. This methodology precludes early intervention, where management of chemotherapy-induced symptoms remains possible. Indeed, proactive intervention creates opportunities for patients to avoid escalation to grade 3 and 4 toxicities, reducing the likelihood of hospitalisation and increasing their overall quality of life. This study was designed to assess the feasibility of a specialised ePROMs tool measuring toxicity encountered by oncology patients during routine outpatient intravenous chemotherapy.

Methods

A proprietary ePROMs tool underwent modification to incorporate a questionnaire focused on nine chemotherapy-associated toxicities within Cabrini Hospital. This tool was piloted in a group of oncology patients receiving intravenous chemotherapy at two outpatient chemotherapy units in a private Australian healthcare centre. Patients registered the toxicities and severity through the modified ePROMs tool weekly from the onset of treatment. The collected data were correlated with the specific chemotherapy drugs administered.

Results

Of the 133 enrolled patients, 102 completed the 12-week study. The median age was 61 years (range 23-81), 94 participants were female (71%), and the most common cancer subtypes were breast (26%), gastrointestinal (25%) and gynaecological (19%) cancers. Post-study feedback was gathered from 76 of the 102 participants [75% (95% Confidence interval (CI): 69.2 to 86.0)] who completed the 12-week program. These participants rated the ePROMs tool as user-friendly [100% (95% CI: 96.4 to 100.0)] and understandable [99% (95% CI: 96.4 to 100.0)], with a majority endorsing its usage to other patients receiving chemotherapy [96% (95% CI: 94.7 to 99.9)] and a preference to continue its usage [87% (95% CI: 79.2 to 93.0)].

Table 2: Participant-reported grade 3 and 4 Toxicities

Symptom	Single Episodes N= 1235	Participants N = 102
	n (%)	n (%)
Pain	34 (2.8)	25 (24.5)
Peripheral neuropathy	21 (1.7)	11 (10.8)
Mouth pain	14 (1.1)	7 (6.9)
Fatigue	48 (3.9)	27 (26.5)
Nausea	10 (0.8)	9 (8.8)
Vomiting	3 (0.2)	3 (2.9)
Diarrhoea	9 (0.7)	7 (6.9)
Constipation	9 (0.7)	8 (7.8)

N= total number, n= number of responses

Table 3. Participant feedback (Total responses =76)

Question	Patient Language	Yes n (%)	No n (%)	NA n (%)
1	I would like to continue reporting during my treatment	66 (87)	10 (13)	0 (0.0)
2	I would recommend use to other patients having chemotherapy	73 (96)	3 (4)	0 (0.0)
3	Improved communication with my doctor	29 (38)	46 (61)	1 (1)
4	Improved my quality of care	41 (54)	34 (45)	1 (1)
5	Made it easier to recall my symptoms	61 (80)	14 (19)	1 (1)
6	Questions were easy to understand	75 (99)	1 (1)	0 (0.0)
7	Was easy to use	76 (100)	0 (0.0)	0 (0.0)

Conclusion

The study demonstrated that the majority of patients were able to accurately record chemotherapy toxicities regularly in a timely fashion. Furthermore, the patient satisfaction rate was extremely high in those who completed the questionnaire. Furthermore, the functionality and usability of the proprietary ePROMs tool were excellent; patients found the program easy to use, and it recorded all questionnaires completed securely. The findings of the study indicate implementation of an ePROMs tool for real-time reporting of chemotherapy toxicities during routine outpatient care is feasible and promising. Positive patient feedback highlights its prospective role in patient-centred care and improving the understanding and documentation of chemotherapy toxicities.