



Use of Performance Status Score for Cytotoxic Chemotherapy among Surgeons in a Tertiary Hospital, Southern Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Author SUO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author OI distributed and collated the questionnaire, participated in the literature search and review of the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: Performance score evaluation is a tool for assessment of patients prior to cytotoxic chemotherapy administration. It has also been used to modify and personalize the dosage, route and types of the various chemotherapeutic agents.

Aim: The present study was aimed at evaluating the use of performance status as assessment tool for patients on cytotoxic chemotherapy.

Study Design: This study is a questionnaire survey involving all doctors in the Department of Surgery of the University of Benin Teaching Hospital, Benin City, Nigeria. The returned questionnaires were individually inspected for clarity of responses and collated. The data was entered into excel sheets. Forms which were incomplete, poorly filled or not returned were not included in the study. All the data entered into the spreadsheets were analysed using the SPSS 20 package.

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Results: A total of 64 (70%) doctors were enlisted in the study. Though 73.4% had knowledge about the use of performance status in the assessment of oncology patients, only 62.1% could name any type of performance status. Most respondents agreed that they would reduce the chemotherapeutic dosage in response to a poor PS score. Routine use of PS should be emphasized as it enhances patients' care, brings measurable objective assessment to bear on the process of both palliative and potential curative measures.

This study focused on the practice amongst doctors, however PS may be routinely measured by nurses both in the clinic or wards when these patients present.

Conclusion: The awareness of performance status score is high however its uptake in clinical practice was low requiring further development and adherence to established protocols.

Keywords: Cancer; cytotoxic chemotherapy; Nigeria; performance status.

1. INTRODUCTION

Performance score evaluation is a tool for assessment of patients prior to cytotoxic chemotherapy administration [1]. It allows the oncologist (Clinical/Medical, Radiation or Surgical) to prognosticate and thus adequately assess the benefit of administration of chemotherapy to cancer patients [2]. It has also been used to modify and personalize the dosage, route and types of the various chemotherapeutic agents [1,2,3]. The first performance score was devised by Karnofsky and his colleagues in 1948 for evaluating primary lung cancer patients undergoing chemotherapy with nitrogen mustard agent [4]. This score derived from a scale that comprised from 0 – 100; with 0 (death) and 100 (normally active). It had 11 scores or ranks. This performance score gained ascendancy in use till 1960 when the Eastern Co-operative Oncology Group (ECOG) introduced a simpler 'ECOG performance status' scale, which had 5 points [5]. This was subsequently modified by the addition of the 5th point (death). The ECOG is also known as the WHO performance score. The Lansky is a modification of the Karnofsky but used in children [2]. It has the same ranks or points. Studies have shown that the Karnofsky Performance Score is interchangeable with ECOG(WHO) and Lansky scores with the ECOG(WHO) 0-1 equals Karnofsky 80-100, ECOG(WHO) 2 equals Karnofsky 60-70, ECOG(WHO) 3-4 equals Karnofsky 10-50 [6]. Though inter-observer differences have been demonstrated, it has not invalidated the scores nor diminished its importance in assessment of patients for chemotherapy [7,8,9].

Performance status (PS) may be assessed by the attending physician, the nurse, the psychiatrists or even the patient, thus it does not require much training to commence its use.

Since it provides a simple objective means to assess the patients' functional state, its routine use has demonstrated benefits to this subset of patients. Assessment and evaluation of patients in clinical settings where its use is routine has shown that patient benefit is ensured with reduced incidence of morbidity and even mortality from chemotherapy administration encountered in such patients [1,2]. It also has demonstrated good prognostic value in the overall patient evaluation [3].

Our study was aimed at evaluating the use of performance status as assessment tool for patients on cytotoxic chemotherapy in Surgery Department, University of Benin Teaching Hospital, Benin City.

2. MATERIALS AND METHODS

This is a questionnaire survey involving all doctors in the Department of Surgery of the University of Benin Teaching Hospital, Benin City, Nigeria. The hospital is a regional tertiary care center involved in the management of patients mainly from the Niger Delta Region. It is a 720-bedded hospital with various subspecialties in Surgery and a center for training of surgical residents in the West African College of Surgeons and the National Postgraduate Medical College. The surgical residents are trained in General Surgery (including gastroenterology, endocrine, oncology and hepatobiliary surgery), Plastic surgery, Orthopaedics, Cardiothoracic and Vascular Surgery, Paediatric Surgery, Neurosurgery and Urology. All subspecialties are involved in the care of malignancies in their respective patients. This care includes the provision of adjuvant and neoadjuvant chemotherapy. Performance status score being a veritable means of evaluation of patient on chemotherapy, all the doctors in the

department were approached individually to fill a self administered Knowledge, Attitude and Practice form developed by the authors. There were 24 consultants, and 60 residents in the department. The residents comprised, Registrars and Senior Registrars. The registrars were entry level residents who are in their first rotations pending the Part 1 examinations in the Faculty of Surgery of the two colleges, whilst the Senior Registrars were those in their final rotations for the Fellowship final examinations. The questionnaire detailed their knowledge, attitude and practice of the use of performance status evaluation. It consisted of three items on biodata, six on knowledge, four on attitude and five on practice as regards the use of performance status and scoring of patients undergoing chemotherapy.

The returned questionnaires were individually inspected for clarity of responses and collated. The data was entered into Microsoft excel sheets. Forms which were incomplete, poorly filled or not returned were not included in the study.

All the data exported into the IBM SPSS Version 20.0 software and analysed.

3. RESULTS

A total of 64 doctors were enlisted in the study, with a 70% response rate. 24% were Consultants, 34% were Senior Registrars and 42% were Registrars (Fig. 1).

The Karnofsky and ECOG were the two commonest PS test known by respondents (Fig. 2).

The respondents (57,95%) agreed that PS was not just a research tool (Fig. 3).

Knowledge about WHO PS was 73.3% of Consultants, 40.9% of Senior Registrars, 22.2% of Registrars. Overall, only 34.4% of respondents routinely used PS these comprised 33.3% among Consultants, 31.8% among Senior Registrars and 22% among Registrars (Table 1).

Most of the respondents would adjust the dose of chemotherapeutic agents based on the PS, which are 60% among Consultants, 59.1% among Senior Registrars and 37% among Registrars (Table 1).

Of the 47 respondents who knew about PS, only 38.1% routinely use it (Table 2).

Table 2 showing a cross tabulation of routine use against knowledge.

Only 40.6% of those who routinely use Performance status, would reduce the dosage of chemotherapeutic regimen (Table 3).

4. DISCUSSION

Awareness of Performance Status was fair across all cadres with consultants having a higher percentage. This is not unexpected however it was not universally used both in routine chemotherapeutic administration and in adjusting patients' dosage of regimens. It is probable that since most patients seen in our environment come in late stages where they appear moribund, the PS assessment is not the main consideration, rather clinicians may be pressed by the need to provide some therapy to these very poor cases rather than leave them if their PS is poor. This is not unconnected with the need to appear to care and to be doing their bit especially when patients and their relatives want to bear the risk of complications if their PS is not taken into cognizance. There would seem to be some disconnect between awareness and routine use of PS in our study that may be bridged by education, formal training, and establishment of clear standard operative protocols in the management of these subset of patients [10,11]. Further studies to find out the reason for non routine use of PS are imperative to clarify this finding.

Most respondents agreed that they would reduce the chemotherapeutic dosage in response to a poor PS score. This is important as it has been demonstrated to reduce the incidence of morbidity and mortality associated with chemotherapy, for it ensures that the patient derives the greatest benefit from chemotherapy [10,12,13]. Chemotherapy administration has been known to be associated with depression [14], together with many cancer patients being already depressed by their diagnosis, dosage and route adjustment would likely result in less complications and make the chemotherapy more palatable to the patients. This is important because the quality of life is more important in end of life care for such patients.

Routine use of PS should be emphasized as it enhances patients' care, brings measurable objective assessment to bear on the process of both palliative and potential curative measures. It allows for measurable assessment of patients'

benefit from chemotherapy. It also directs the decision on the patient care plan towards areas of resuscitation, stabilization and quality of life.

This study focused on the practice amongst doctors, however PS may be routinely measured by nurses both in the clinic or wards when these patients present. Patients themselves can be taught and made to do a self assessment and

indeed some studies have shown that they may be the better assessors of their functional state. Some studies have focused on the use of wearable devices by patients to further make the assessment more objective [11,12]. The importance of this is that, in a busy practice, a protocol can be developed where the PS may be routinely measured by other healthcare providers and or the patient and charted thus helping to ensure use [10].

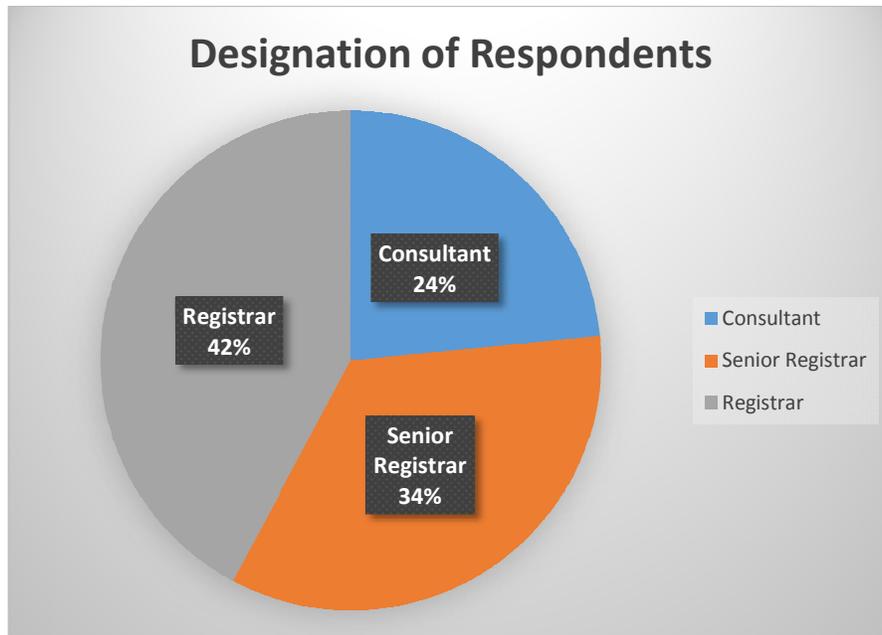


Fig. 1. Showing the total percentage of respondents according to cadre

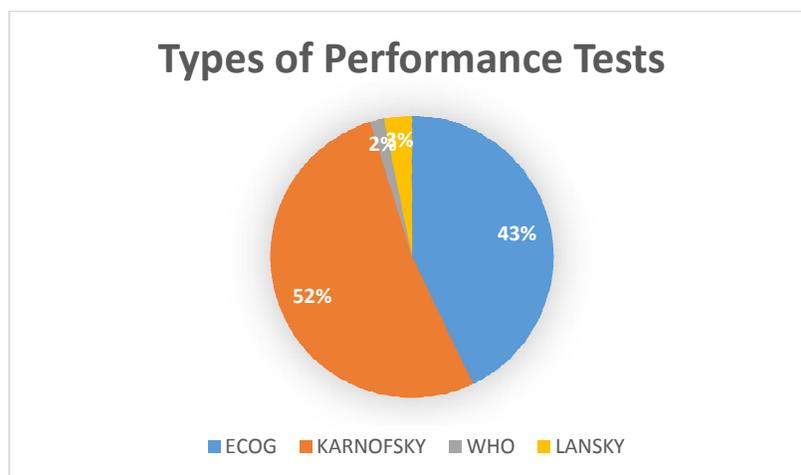


Fig. 2. Showing the types of performance testing known by respondents



Fig. 3. Showing responses to the question, “Is Performance Testing only useful for Research Purposes?”

Table 1. Showing the responses to 4 questions on knowledge and practice concerning performance status

Knowledge and Practice of PS	Consultants (n = 15)	Snr Registrar (n = 22)	Registrars (n = 27)	Total (n = 64)	CHI Square p-value
Heard of performance status					
Yes	12(80.0)	18(82.0)	17(63.0)	47(73.4)	0.267
No	3(20.0)	4(18.0)	10(37.0)	17(26.6)	
Knew that WHO has a performance testing for cancer patients					
Yes	11(73.3)	9(40.9)	6(22.2)	26(40.6)	0.010
No	4(26.7)	13(59.1)	18(81.8)	35(54.7)	
Not sure	0(0.0)	0(0.0)	3(11.1)	3(4.7)	
Routinely assess PS					
Yes	5(33.3)	7(31.8)	6(22.2)	18(28.1)	0.112
No	10(66.7)	11(50)	18(81.8)	39(60.9)	
Not sure	0(0.0)	4(18.2)	3(11.1)	7(10.9)	
Reduced dosage of chemotherapeutic agents because of poor PS score					
Yes	9(60.0)	13(59.1)	10(37.0)	32(50)	0.382
No	4(26.7)	4(18.2)	11(40.7)	19(29.7)	
Not sure	2(13.3)	5(22.7)	6(22.2)	13(20.3)	

*Percentages in brackets

Table 2. Showing a cross tabulation of routine use against knowledge

Routinely used the PS	Heard of performance status		Total	CHI Square p-value
	Yes	No		
Yes	18(38.3)	0(0.0)	18(28.1)	0.544
No	27(57.4)	12(70.6)	39(60.9)	
Not sure	2(4.3)	5(29.4)	7(10.9)	
Total	47(100.0)	17(100.0)	64(100.0)	

*Percentages in brackets

Table 3 Showing a cross tabulation of routine use against reduction in dosage regimen

Routinely assess the PS	Reduced the dosage of chemotherapeutic agents because of the poor performance score			Total	CHI square p-value
	Yes	No	Not Sure		
Yes	13(40.6)	1(5.3)	4(30.8)	18(28.1)	0.573
No	17(53.1)	14(73.7)	8(61.5)	39(60.9)	
Not Sure	2(6.3)	4(21.1)	1(7.7)	7(10.9)	
Total	32(100.0)	19(100.0)	13(100.0)	64(100.0)	

*Percentages in brackets

Prognostic value of PS is in adjustment of chemotherapy dosage, route and sequence [10,11]. The value of PS in prognosis of cancer patients on chemotherapy has been established by various studies [1-9,11,14]. Our study showed that only 38.3% of those who knew about PS using it routinely whereas 50.7% of them reported that they do not routinely use PS in the clinical management of their patients. Though this was not statistically significant, it however shows that either knowledge has not caught up with practice or other factors including clinical assessment has greater premium in the placement on chemotherapy. This is further demonstrated as 53.1% of those who would reduce dosage of medications based on PS do not routinely use it in their clinical practice. Further studies may be required to clearly establish the factors at play here, since overwhelmingly the respondents agree that the PS is not just a research tool but has importance in clinical practice.

It has shown that patients with poor scores may not benefit from some chemotherapeutic measures that may further depreciate their overall clinical condition.

5. CONCLUSION

The awareness of performance status score is high however its uptake in clinical practice was low requiring further development and adherence to established protocols.

CONSENT

As per international standard written participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

Ethical approval was obtained from the Research and Ethics Board of the University of Benin Teaching Hospital.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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