The implication of monitoring tumour markers: a personalised medicine approach

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INTRODUCTION

The availability of tumour markers in managing oncology patients contributes to developing personalised pharmacotherapy. The key to successful pharmaceutical care planning depends on the pharmacist being integrated within the multidisciplinary team and a documented system of monitoring drug therapy.

AIM

To develop and implement a pharmaceutical personalised approach based on pharmaceutical care plan (PCP) incorporating tumour markers for patients suffering from ovarian, pancreatic or prostate cancer.

METHOD

- **Drug therapy problems classifications developed and validated by Cipolle et al. (2004)[1] and the Pharmaceutical Care Network Europe version 6.2[2] were used in the development of a newly designed PCP template.**
- **The developed PCP was implemented at Sir Anthony Mamo Oncology Centre (SAMOC).**
- **Eligible patients were oncologic patients over 18 years of age, able to understand English or Maltese, mentally fit and managed on at least one oncology medication.**
- **The PCP template consists of two sections (Figure 1). The first section records patient's details, carer's details, diagnosis, past medical history, current medications including non-oncologic therapy, previous cancer treatments, chemotherapy cycles prescribed, relevant laboratory investigations and tumour marker results. The second section categorises individualised pharmaceutical care issue (PCIs) identified for each patient classified as per classification developed. It also documented the pharmacist's actions.**
- **Medical files and blood results including tumour marker results were reviewed. Patient interviews were carried out.**
- **All data collected was analysed using the IBM Statistical Package for the Social Sciences v 24.**

RESULTS

- **A total of 67 patients (35 male, 32 female) were enrolled.**
- **The mean age was 65 ± 10.4 years. The range was 26 to 83 years.**
- **Forty-five patients had a family history of cancer.**
- **Oncology patients suffering from ovarian, pancreatic and prostate cancer were 19, 27 and 21 respectively.**
- **A total of 238 PCIs were identified, ranging from 2 to 5 PCIs per patient. The mean was 3.55 PCIs per patient. The most common PCIs identified were classified as counselling needs (65), adverse drug reactions (65), additional medication needs (47) and seamless care needs (34).**
- **There was statistical correlation between age and cancer type ($p = 0.003$). Patients aged ≤ 55 years, 56-65 years and ≥ 66 years had a higher probability to suffer from ovarian, pancreatic and prostate cancer respectively.**
- **Wilcoxon signed-rank test showed significant reduction in the mean tumour marker results post treatment ($p < 0.05$).**

Date: **Care plan No:**

Sir Anthony Mamo Oncology Centre (SAMOC)
Pharmaceutical Care Plan

PATIENT DETAILS

Surname			Patient Reference No		
Name			Patient Phone		
Date of birth (DOB)	____/____/____	Age	Consultant		Ward
Gender	□ Male	□ Female	Ethnic origin		
Marital status	□ Single	□ Widow	□ Married/partner	□ Separated/Divorced	
Current living situation	□ Living with family/partner		□ Living alone	□ Other	
Family history of cancer	□ Yes	□ No			
Genetic/hereditary risk factor(s) or predisposing conditions					
Smoking status	□ Past History	□ None	□ 0-1 pack/day	□ >1 pack/day	
Caffeine consumption	□ Past History	□ None	□ 1-2 bev/day	□ >2 bev/day	
Alcohol consumption	□ Past History	□ None	□ <2 U/week	□ 2-6 U/week	□ >6 U/week

Level of Education			Occupation		
□ Pre-Primary □ Primary □ Secondary	□ Post-secondary □ Vocational	□ Tertiary □ Other	□ Housewife □ Worker □ Employee	□ Self-employed □ Public servant □ Pensioner	□ Craftsman □ Other

DIAGNOSIS

Cancer type/location/histologic subtype:		Diagnosis date: ____/____/____
Tumour size:	Lymph nodes:	Metastasis:

Stage □ I □ II □ III □ IV □ Not applicable

Other information about the cancer:

RELEVANT MEDICAL HISTORY

	Approx. date	Problem description		Approx. date	Problem description
1			4		
2			5		
3			6		

Known drug sensitivities:

CURRENT MEDICATIONS

	Drug name	Dose	Form	Frequency	Route	Dates start	Dates stop		Drug name	Dose	Form	Frequency	Route	Dates start	Dates stop
1								7							
2								8							
3								9							
4								10							
5								11							
6								12							

ADR's/ OTC medications (including herbals):

1

Figure 1: An extract from the pharmaceutical care plan

CONCLUSION

The developed individualised PCP was developed as a helpful tool for the clinical pharmacist to update patient pharmaceutical care records according to the PCIs identified whilst at the same time taking into consideration relevant tumour marker trends as well as other laboratory investigations.

References

1. Cipolle RJ, Strand LM, Morely PC. Pharmaceutical Care Practice. USA: McGraw Hill Co; 2004.
2. Pharmaceutical Care Network Europe (PCNE) Foundation: PCNE Classification for drug related problems. V6.2. 2010. Available from: http://www.pcne.org/upload/files/11_PCNE_classification_V6-2.pdf