Healthcare Innovations
How practice has changed

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Drug use evaluation project – nebulised pentamidine

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Background:

Trimethoprim -sulfamethoxazole (TMP-SMX), is the traditional first line prophylactic agent for *Pneumocystis jiroveci Pneumonia* (PJP) due to superior efficacy, spectrum of activity, low cost, ease of access & low resource requirements[1]. Nebulised pentamidine is utilised as a second line agent but is not as efficacious and has greater financial impact[2].

Aim:

To identify the indication for nebulised pentamidine & why other alternative PJP prophylaxis therapies were not appropriate.

Methods:

A prospective audit was conducted during March 2021. Data was collected for 30 cancer care patients using an audit tool.
Data collected aimed to identify:

- Indication & duration for nebulised pentamidine
- Patient stream (eg BMT/Haem/MONC/RONC) & cancer care diagnosis
- Platelets at time of last dose
- Allergy status & severity (if known)
- Current immunosuppressive/chemotherapy regimen

Patient allergy severity to TMP-SMX was classified into five risk categories: very low – severe using the Austin Antibiotic Allergy Assessment Tool & decision support tool.

References:
1.Cooley L, Dendle C, Wolf J, Teh B, Chen S, Boutlis C et al. Consensus guidelines for diagnosis, prophylaxis and management ofPneumocystis jiroveciipneumonia in patients with haematological and solid malignancies, 2014. Internal Medicine Journal. 2014;44(12b):1350-1363.
2.Prophylaxis - Pneumocystis jiroveci (carinii) in cancer patients [Internet]. Eviq.org.au. 2021

TMP-SMX allergy severity:	Action category:	Example of reaction:	Total number of patients:	% of study total:
Very low	Appropriate for direct de-labelling	Nausea, swallowing difficulties	3	10%
Low	Appropriate for supervised direct oral challenge.	Previous mild reaction to sulfur	1	3.3%
Moderate	May be appropriate for oral rechallenge.	Rash, itch, boils	13	43.3%
High/ severe	Not appropriate for desensitisation	Severe bullous erythroderma, desquamation, DRESS	3	10%
Not applicable	Not appropriate for retrial due to low platelets	-	7	23.3%
Not applicable	Not appropriate for retrial due to drug interaction with current chemotherapy	-	1	3.3%
Not applicable	Compliance/for further allergy investigation	-	2	6.7%

Results:

30 patients included in the study: 17 haematology, 11 BMT, 2 MONC/RONC

Time since pentamidine commenced (months):	Total number of patients:	% of study total:
0-6	14	47%
7-12	9	30%
12+	7	23%

Conclusion:

Desensitisation & re-challenging can be considered in majority of patients, particularly those with mild to moderate reactions to TMP-SMX.
Pentamidine duration should be regularly reviewed for ongoing requirement. Further action required for duration of use for possible TMP-SMX induced myelosuppressive ad verse effects.