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Intervention to Improve Streptokinase Knowledge among Post-STEMI Patients : A Randomised Controlled Trial

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INTRODUCTION

- In Malaysia, the mainstay of treatment for ST-segment elevation myocardial infarction (STEMI) is streptokinase as a fibrinolytic agent
- For standard care in Hospital Tuanku Fauziah (HTF), Kangar, Malaysia, a patient who has been administered streptokinase will be given streptokinase card and pharmacist counselling to prevent re-administration within one-year period.

Problem statement :
- The re-administration can be prevented as the cards can be beneficial depending on the patient's knowledge on streptokinase and streptokinase card.
- A clear and understandable counselling aid such as patient information leaflet (PIL) may be important to improve patients' knowledge on his/her disease condition.

Justification of Study :
- With additional reading material, such as PIL given to patients, it may help improve retention of streptokinase knowledge after being discharge from hospital.
- There are limited published studies that written counselling aid affect the effectiveness of knowledge retention.

Objective : To determine the impact of streptokinase patient information leaflet (PIL) on knowledge of streptokinase and streptokinase card.

METHODS

Study design: A single-blind (respondents blinded throughout the study) randomised controlled trial (RCT) on all post-STEMI patients from October 2018 to September 2019.

Inclusion criteria:
✓ Post-STEMI patients administered with streptokinase and being issued streptokinase card for the first time.
✓ Patients who can read and understand Malay language.

Exclusion criteria:
✗ Patients with previous allergy to streptokinase

Instrument development :
- Telephone survey from a previous validation study in the same setting [1] was used to determine knowledge on streptokinase (5 questions) and streptokinase card (4 questions).
- The PIL was designed using Baker Able Leaflet Design (BALD) criteria [2] criteria and content validated by emergency and medical specialists, pharmacists and health education officer. Study flow diagram (CONSORT) [3] :
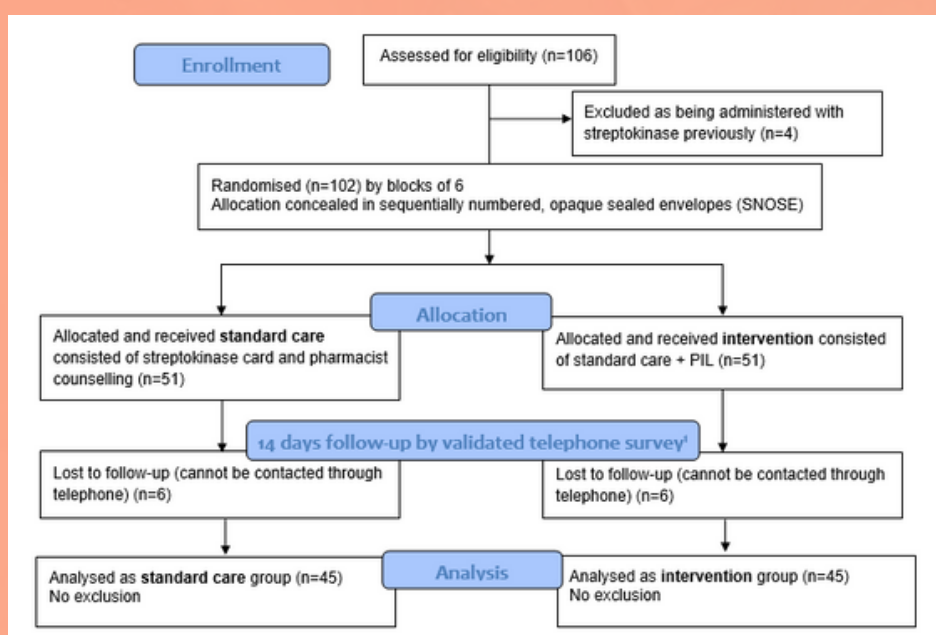
Sample size : Prior data[4] indicate that the mean knowledge score on allergy card for patients receiving brochure was 3.5±0.91 and the mean for patients receiving pharmacist counselling and brochure was 3.9±0.57, calculated to 45 samples per arm.

Statistical Analysis :
- The differences on knowledge levels of streptokinase and streptokinase card between the two arms were analysed by using Pearson's chi-square (all assumptions were met).
- Correlation between knowledge scores of streptokinase and streptokinase card was analysed using Pearson's or Spearman's correlation test.

RESULTS

PIL fulfilled criteria of good layout and design (BALD score=25).2

Most respondents were 41 to 60 years old (standard care:66.7%; intervention:53.3%), male (73.3%; 53.3%), Malay (95.6%; 86.7%), married (77.8%; 97.8%), spouse as primary caretaker (68.9%; 57.8%) and secondary school leavers (35.6%; 57.8%).
PIL significantly increased the percentage of respondents with good streptokinase knowledge. However, PIL significantly reduced respondents with good streptokinase card knowledge (Table 1).

Table 1. Knowledge level of Section B (streptokinase) and Section C (streptokinase card) between patients receiving standard care and standard care + PIL.

Knowledge Section	Knowledge level, n (%)		p-value*
	Poor	Good	
B (Streptokinase)			p<0.001
Standard care	42 (93.4)	3 (6.6)	
Standard care + PIL	17 (37.8)	27 (62.3)	
C (Streptokinase card)			0.001
Standard care	5 (11.1)	40 (88.9)	
Standard care + PIL	19 (42.2)	26 (57.8)	

*Pearson's chi-square test
Spearman's rank order correlation between knowledge score of streptokinase (Section B) and knowledge score of streptokinase card (Section C) with a result of r =-0.214, p=0.042 showed a poor negative correlation.

DISCUSSIONS/CONCLUSIONS

- Significance testing of baseline differences in this study was not performed, as recommended by the CONSORT statement.[3]

- The presence of PIL which contain information about streptokinase helps patients to retain knowledge on streptokinase and potentially prevent re-exposure to streptokinase within one year. This is supported by a study in which PIL significantly improves knowledge of hepatitis and hepatocarcinoma.[5] PILs generally are inoffensive for the patients, inexpensive and time neutral for practice.[6]

- For Section C on streptokinase card, only respondents obtaining a full score of 4 are categorised as having good knowledge.[1] PIL seems to deteriorate patient knowledge on streptokinase card based on knowledge score of streptokinase Card in section C. This was primarily due to fewer respondents who received PIL answered correctly compared to the control group (35.6% vs. 4.4%, p<0.001) on the true-false question on whether "the (streptokinase) card states the date the drug was given". Counselling session with PIL might cause patients to be more focused on the PIL compared to streptokinase card. As suggestion, date of streptokinase administration could be written at the PIL as well.

In conclusion, our PIL had improved knowledge of streptokinase. Our study suggests that PIL should be provided to all patients who received streptokinase to improve knowledge retention. The knowledge of streptokinase card can be improved by addition of the administration date in the PIL and emphasising it during counselling.

ACKNOWLEDGEMENT

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