ECG RED FLAG DETECTION EDUCATION FOR PHYSICAL THERAPISTS

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Introduction

Physical therapists interact with a variety of patients who have cardiopulmonary pathologies. The physical therapist may help to directly manage these conditions or perform interventions that are aimed at working with them. Many patients who live with cardiopulmonary conditions are monitored by Electrocardiograms (ECGs).

In a multidisciplinary setting, it is imperative to have safeguards in place that prevent medical errors and empowers staff to be proactive members of the healthcare team. Physical therapists should be able to read ECGs for red flags. A substantial gap is present in the literature regarding ECG evaluations by physical therapists for pathology related to sudden cardiac arrest. Studies have evaluated the ability of pediatricians and medical students to interpret ECG's through the use of questionnaires.[1,2] Similar to most professional health curriculums, understanding and evaluating ECG's is included within the physical therapy coursework.

There are also no available studies investigating methods of administering ECG education for PT's to detect red flags in ECG. Our study aims to find the appropriate amount of training needed to increase SPT and PT competence in finding red flags in ECG's.

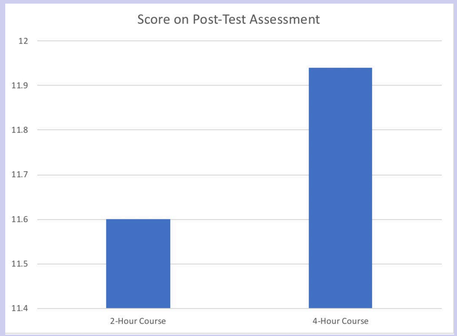
Methods

This is an experimental design with quantitative data. Licensed physical therapists in the state of Florida were recruited. After acquiring the subjects and administering consent forms, participants completed a multiple choice pre and post test on ECG's after viewing a live Zoom session of either a two- or four-hour educational course. The Zoom sessions covered ECG interpretation along with red flag recognition and case examples relating to Physical Therapy.

Results

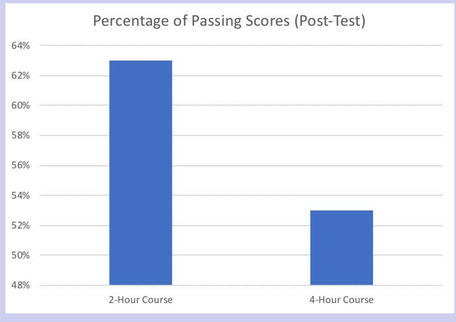
The average pre-test score for the 2-hour course was 10.7/15 and the average pre-test score for the 4-hour course was 9.06/15. The average posttest scores were 11.60 and 11.94 for the 2 and 4-hour course respectively (Table 1). By this metric, the 4-hour course yielded a greater post-test average.

TABLE 1:



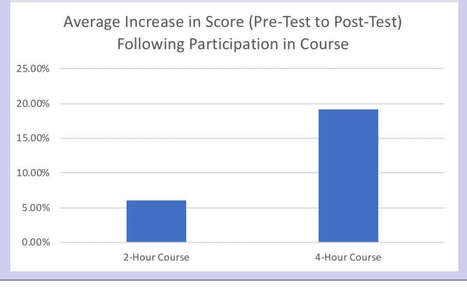
The researchers designated that a passing score on the assessment to be a 12/15 or 80% correct. Out of the 19 subjects in the 2-hour group 12 individuals has a passing posttest score while only 9 of 17 individuals has a passing test score in the 4-hour group. This was an improvement of 5 individuals in both groups as only 7 individuals passed the pretest in the 2-hour group and 4 in the 4-hour group.

TABLE 2:



Ultimately the aim of the study was to compare improvements in scoring from pre-test to post-test following the 2 and 4-hour presentations. Thus, based on the criteria set by the researchers, the average increase in score following the 2-hour intervention was .9 points or 5.96% improvement. The average increase in score following the 4-hour intervention was 2.88 points or 19.21% improvement.

TABLE 3:



Data Analysis

After acquiring the data in the results, the researchers ran a Mann-Whitney U test to determine if there was a statistically significant change in means from pre to post-test comparing the 2-hour and 4-hour course.

Test Statistics[a]

	pretest	posttest	changetest
Mann-Whitney U	105.000	149.500	108.500
Wilcoxon W	258.000	339.500	298.500
Z	-1.813	-.385	-1.699
Asymp. Sig. (2-tailed)	.070	.700	.089
Exact Sig. [2*(1-tailed Sig.)]	.076[b]	.707[b]	.093[b]

The Mann-Whitney U test showed that there was not a statistically significant improvement between the pre-test scores and the post-test scores between the 2-hour group and the 4-hour group. The change in scores between the groups was shown to be not significant (p value was .089, alpha set at .05).

Discussion

There has been evidence for competence with ECG's for pediatricians and medical students, however our study is the first to analyze how PT's would recall ECG information after a continuing education course (2-hour and 4-hour).[1,2] The data from our study showed that the average test scores for the 4-hour course were slightly higher than 2-hour course (Table 1). However, the percent improvement for the 4-hour course participants was higher than the percent improvement for the 2-hour course participants (Table 3). The pretests scores demonstrated that PTs do have knowledge of ECG red flags. This demostrates the ability of PTs to recognize ECG red flags and that the PTs to rember content from prior learning.

Conclusions

There was not a statistically significant change (p=.089) in mean scores from pre to post-test when comparing the 2-hour and 4-hour course. Further research should be conducted with a larger sample size and further examin PTs current knowldge of reading ECG red flags.

References: See Handout with Reference List