

AT THE HEART RATE

EFFECT OF TRAINING TO IMPROVE DIAGNOSTIC SKILL AND TREATMENT OF MYOCARDIAL INFARCTION ON KNOWLEDGE AND SKILL PERCEPTION OF MEDICAL STAFFS

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Background

Heart disease is the leading cause of death in the western world. Diagnostic failures in myocardial infarction can lead to significant morbidity and mortality to patients. Studies that examined medical malpractice claims for errors in the diagnosis of cardiac events, demonstrated that about a third of the patients who suffered from a myocardial infarction were discharged with a misdiagnosis at the initial visit. The risk management unit at Inbal Insurance Company Ltd, (a governmental company) in cooperation with the Association of Cardiology and Heart Disease Prevention in Israel created a unique workshop for training medical staff. The goals of the training - improving the diagnosis, quality and safety of care for patients with chest pain.

Methods

Training occurred between January and June 2021. Each training included three virtual video meetings in groups of around 40 physicians and nurses from Emergency and Internal Medicine departments from all hospitals in Israel. Overall, we conducted five training sessions for 206 participants. The training combined theoretical, clinical and legal aspects, with practical exercises.

At the beginning and at the end of each training, the participants answered a knowledge questionnaire - five multiple-choice questions, and in addition at the end of training, two questions regarding perception of their skills improvement and the usability of tools for managing pathological ECGs in their daily clinical routines following the training. We compared knowledge questionnaires between the beginning and the end of the training.

Components of the Training Program:

- Analysis of pathological ECG charts indicating emergency situations
- The association of the ECG results to the patient's clinical situation
- The desired interface between the Emergency Department and Cardiac Intensive Care Units and Catheterization
- Promoting Quality and Safety Awareness in Treatment
- Reference to medicolegal aspects such as the importance of documentation in the medical record, communication between health care team and the continuity of care



Questions from the end of the training concerning the participant's perception

In the questions from the end of the training concerning the perception of the participant, the participants answered:



N=144 Figure 3



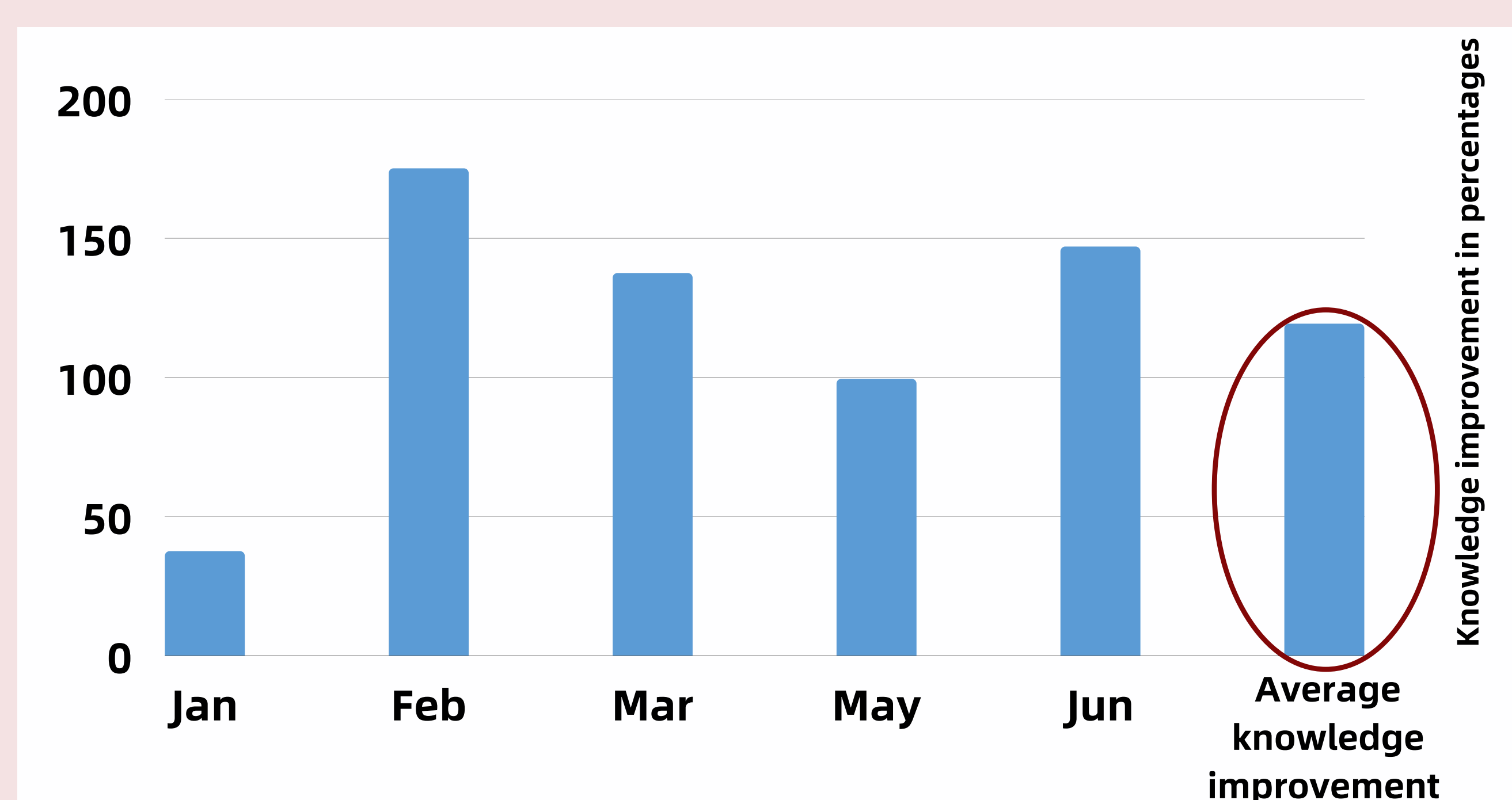
N=122 Figure 4

Results

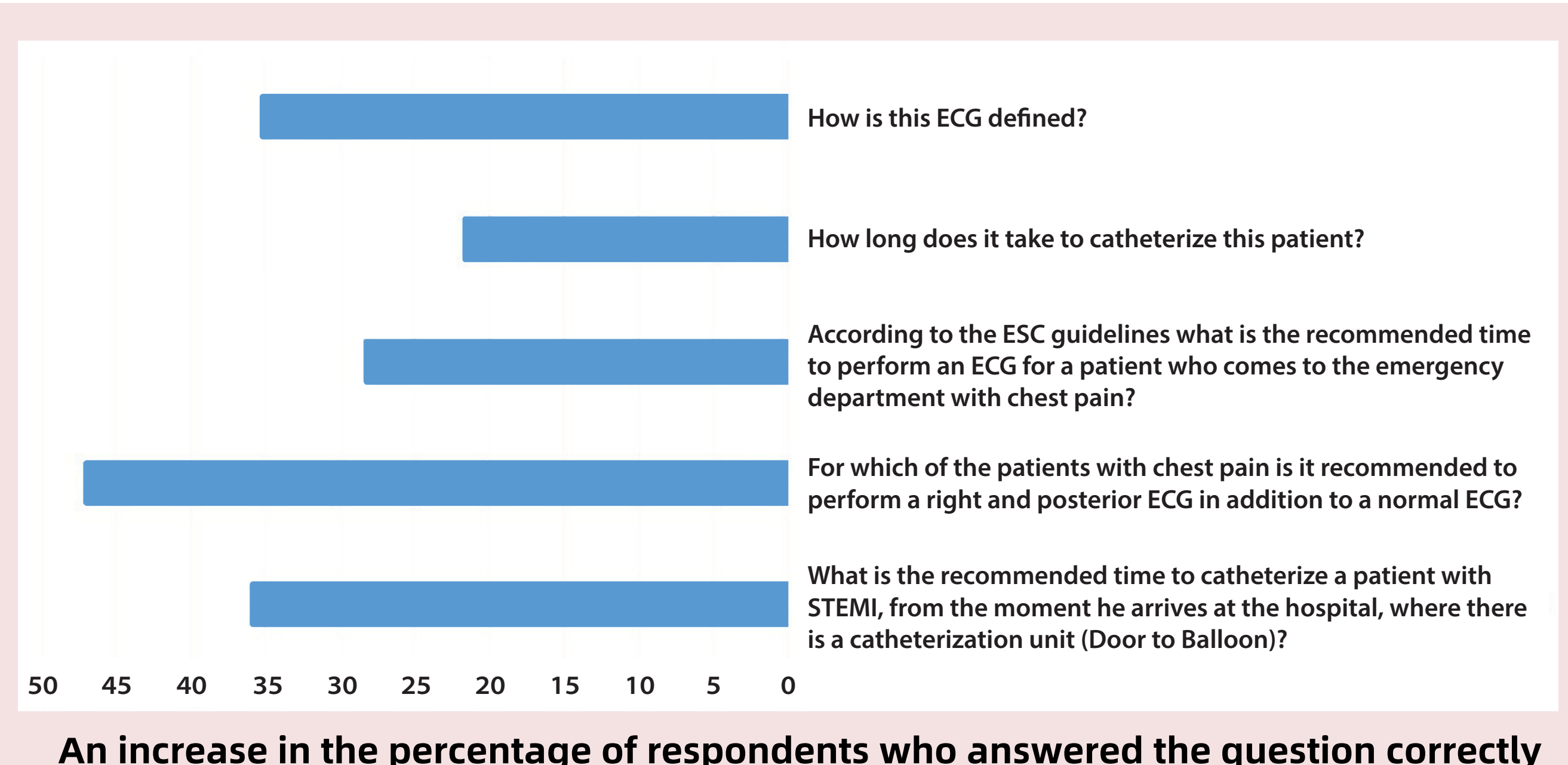
A total of 255 questionnaires were filled out. Of these, 55 participants answered questionnaires both at the beginning and at the end of the training. From the statistical analysis of these questionnaires, it emerged that the average score per participant improved by 120% - a statistically significant improvement ($p < 0.05$). see Figure 1

Comparing the answers in the knowledge questionnaires from the beginning and the end of the training according to a question, an increase of 22-47 percent was found in the respondents who answered correctly to the various questions. See Figure 2

Knowledge improvement in percentages between the beginning of the training and at the end of the training, Figure 1



Average knowledge improvement by question, Figure 2



Conclusions and recommendations

ECG training has improved the clinical and medico-legal knowledge of the medical teams of hospitals in Israel, especially in interpreting ECGs for myocardial infarction and life-threatening arrhythmias. The participants improved skills and received valuable tools for management pathological ECG. We are suggesting that mandatory participation in this training should be considered, as in ACLS (Advanced Cardiovascular Life Support) certification. In our opinion, improving the skills in reading and interpreting ECG and rapid identification of patients with pathological ECG, will improve the quality and safety of care.