Assessment of management ability based on electrocardiographic findings in medical students whom had just finished cardiovascular system module

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Introduction: Electrocardiography (ECG) reading is an important skillset to manage cardiac emergencies, meaning knowledge of ECG and ACLS are inseparable. There is significant increase in ROSC with ACLS-trained versus no ALCS-trained personnel (Morreti, et al). We aimed to evaluate the knowledge and fluency of general practitioners in reading electrocardiography, response and initial management of cardiac emergencies.

Methods: The material for the question was taken from textbook “The only ECG Book you will ever need”. 60 medical students participated were 2nd year student who just finished cardiovascular module on 3rd semester. Students were collected using simple randomized sampling. There were 20 ECG images with presenting chief complaint, and students should guess the diagnosis. This questionnaire was done unexpectedly, so there is no time for students to study, in order to know their baseline knowledge. There were observers to prevent students for cheating, in order to reduce result bias. (Questions available at: https://goo.gl/T8Vf47).

Result: We calculate that respondents answered correctly in nominal and percentage. SVT cardioversion 26.6% (16 respondents), AV block grade 2-1 atropine 30% (18 respondents) and referral to cardiologist 71.6% (43 respondents), monomorphic VT cardioversion 16.6% (10 respondents), PEA cardiopulmonary resuscitation 21.6% (13 respondents), PVC beta-blockers 35% (21 respondents), VF epinephrine 13.3% (8 respondents), AF beta-blockers 35% (21 respondents), AVB grade 3 pacemaker referral 58.3% (35 respondents), AVB 2 type 2 Observation 16.6% (10 respondents), TdP defibrillation 48.3% (29 respondents), AFlut not one of the above 25% (15 respondents), polymorphic VT cardioversion 16.6% (10 respondents), WPW referral to cardiologist 25% (15 respondents), STEMI post-thrombolytic referral for angiography 33.3% (20 respondents), STEMI MONACO 50% (30 respondents), STEMI MONACO 26.6% (16 respondents), LVH (CHF) furosemide 40% (24 respondents), Pericarditis aspirin 41.6% (25 respondents), Pulmonary embolism with hemodynamic instability fibrinolysis 16.6% (10 respondents).

Conclusion: The questions that majority can answer are management of AVB grade 2 and 3, STEMI, CHF and AF. While questions that answered related to pulmonary embolism, ventricular fibrillation and ventricular tachycardia are unsatisfying. The inability to choose management correctly for VT and VF are concerning especially in pulseless (cardiac arrest) situation. We encourage further emphasis in these subjects, additional ECG training and quizzes.