

BEAT-IT Project: Screening for Causes of Sudden Cardiac Death in Maltese Adolescents

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Introduction: Screening for Sudden Cardiac Death (SCD) in athletes is expanding and is now mandated by a number of sporting organisations. Evidence from the Veneto region by *Corrado et al* [2006] has demonstrated that the death rate in athletes decreased significantly since the introduction of pre-participation screening (PPS), with their non-athletic counterparts now having a higher risk because routine screening is not carried out.

Retrospective studies from autopsy data suggests that in the United Kingdom (UK) alone, 8 to 12 young individuals die suddenly every week. Presumed to be healthy before the event, the psychological burden on family and friends as one would imagine is devastating. Evidence from general population screening projects held in Italy, UK and Japan suggests that screening for non-athletic individuals is feasible and sensitive, at a reasonable cost. Identifying high-risk individuals early on can allow cardiologists to institute treatment before complications take place, along with delivering useful lifestyle advice to patients which can help prevent a tragedy.

Aim: The small gene pool in the Maltese Islands can serve as a substrate for pathologies which can lead to SCD, a phenomenon which we are experiencing on a daily basis in the Inherited Cardiomyopathy and Inherited Arrhythmia Clinics. The BEAT-IT Investigators will for the first time screen all year 11 students across the Maltese Islands for causes of SCD. To our knowledge, this is the first reported project of widespread national screening of a specific age group.

Methodology: A questionnaire and electrocardiogram (ECG) offers a combined sensitivity of > 80% for identifying causes of SCD. Data protection clearance together with the necessary permissions were obtained from all relevant bodies. Approval and endorsement was also obtained from the Ministry of Education All schools who have students sitting for year 11 have been asked to participate, all of which have kindly accepted the invitation. Schools will be distributing study questionnaires to all those students who satisfy the inclusion criteria. The

questionnaire will be looking into demographics, exercise and non-exercise related symptoms, family history of sudden cardiac death, together with athletic ability. ECGs will be carried out on-site in schools. The investigators will be undergoing evaluation of all questionnaires and ECGs, provided subject and parental consent was obtained.

Eligible Cohort: A total of 4155 students are eligible for participation, with 2060 (49.9%) being male and 2095 (50.8%) being female. In total, 49 schools will be participating, 21 (43%) state, 21 (43%) church and 7 (14%) independent schools. The majority of schools are located in the Northern Harbour (n=126, 53%) with the least located in the South Eastern region (n=3, 6%).

Conclusion: The project will be testing the feasibility of introducing a nationwide adolescent screening program to detect rare potentially malignant cardiac disease.