

prompt motivation for larger and well controlled cohort studies.

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## 10. Effect of pacemaker/defibrillator lead extraction on pulmonary artery systolic pressure

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As the number of cardiac device implantations are on a rise, there is a parallel increase in their long-term complications including device-related infection that will require lead extraction. As the detachment of fibrosed debris reaching the pulmonary trunk can occur during the extraction, the risk of developing new-onset Pulmonary Hypertension (P. HTN) increases with every extraction. Yet, there is paucity of evidence to support such claim. Given the clinical significance of such findings, we sought to determine the risk. A chart review of 113 patients whom underwent lead extraction at Prince Sultan Cardiac Center in Saudi Arabia during the period of Jan, 2002 to Jul, 2015 was carried out. Six patients had lead extraction twice, making the total number of extractions to be 119. Of this study cohort, only 45 cases had Pulmonary Artery Systolic Pressure (PASP) measurement via Transthoracic Echocardiography (TTE) prior to and after device extraction. PASP measurements were obtained as reported whether a single measurement or a range between two readings, and an average was calculated in case of two readings. A difference of 10 mmHg or more in the PASP, whether progression or improvement, was considered clinically significant. Median follow up of TTE after lead and device extraction was 5 months. Out of 45 patients, 31 (68.9%) were males and 14 (31.1%) were females. Average age was 46.5 (SD = 17) years. Eleven patients (24.4%) experienced a significant increase of PASP after lead extraction (10 had normal pressure readings before extraction, and only one had progression to a more severe form of the disease), 9 patients (20.0%) showed improvement, and the remaining (55.6%) did not show any significant change in PASP. Average implantation-to-extraction duration of the leads was higher among those who had no pressure difference (50.6 vs. 23.3 months). When looking through potential predictors that may increase the likelihood of developing P. HTN, there was no association with a pre-existing lead-attached vegetation (2 patients only), nor the type of lead (6 high-voltage vs. 5 pacing leads across the tricuspid valve). In patients who developed P. HTN, 8 (72.7%) had their devices extracted as a result of a complicated infection (wound infections and/or infective endocarditis), as opposed to 3 (27.3%) whom underwent device extraction for other indications. Our

simple descriptive study showed that the risk of developing P. HTN following lead and device extraction is negligible. However, our findings should be interpreted in the light of the limitations such as a small sample size and lack of comparable control group. Paucity of data and evidence on the long-term complications subsequent to device and lead extractions will be a subject of further exploration given the potential connection to patient outcomes and management.

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## 11. Prevalence of psychiatric symptoms among patients with recurrent vasovagal and unexplained syncope

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Syncope is defined as a transient loss of consciousness and absence of postural tone followed by spontaneous recovery. Neurally mediated syncope (vasovagal) and idiopathic unexplained syncope (US) are the most common causes of syncope. Syncope is a very limiting disease that, if recurrent, affects the patients' physical and psychological health. Our objective from this study is to measure the prevalence of psychiatric symptoms among patients with US. All patients (>12 years) with vasovagal or US who were evaluated in King Khalid University Hospital were identified. Echocardiography and table tilt test reports were reviewed and patients who had cardiac syncope (due to arrhythmia or structural heart disease) were excluded ( $N = 18$ ). Ninety-four patients were included for further psychiatric assessment. The patients were contacted to fill the Symptoms Checklist-90-Revised (SCL-90-R), which is a self-reporting questionnaire used to evaluate traits of depression, anxiety, somatization disorder and phobia. SCL-90-R scale has been translated to Arabic and validated in previous studies. Of the included cohort, 43 responded to fill the assessment scale, and 51 were excluded due to failure of communication ( $N = 41$ ) or refusal to participate ( $N = 10$ ). A control group was recruited with a case: control ratio of 1:3 matching for age, gender, and chronic illnesses. There were 43 patients and 129 control subjects, with predominance of females (67.4%) and an average age of 33.8 (SD = 16). There was no difference in average scores of depression (13 vs. 14.53,  $P = 0.31$ ), anxiety (11.3 vs. 10.4,  $P = 0.51$ ), or phobia (5.4 vs. 5.2,  $P = 0.88$ ). How-

ever, the syncope group had a higher average score for somatization disorder (18.53 vs. 13.66,  $P = 0.002$ ). Binary logistic regression model was measured after grouping the cohort into above and below median scores. After adjusting for age, gender, and chronic illnesses, the association between syncope and somatization disorder remained significant (OR = 3.75, CI; 1.72, 8.15,  $P = 0.001$ ). Despite no statistical significance, when looking at the effect size, having an anxiety score above the median was 52% higher in cases compared to controls (OR = 1.52, CI; 0.74, 3.14,  $P = 0.255$ ). A sub-analysis of the case group was applied and showed that patients who had multiple syncopal attacks (6 or more) had higher average scores of depression, anxiety, phobia and somatization disorder compared to those who had less than 6 attacks (Table). Patients with vasovagal or US have similar incidence of depression, anxiety or phobia symptoms and higher incidence of somatization symptoms compared to control subjects. However, recurrent and more frequent attacks of syncope was predictive of more deteriorative psychological profile for all four domains. Our findings should prompt motivation to study the effectiveness of psychological intervention in patients with recurrent syncope.

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## 12. Physicians' knowledge and attitudes in Saudi Arabia regarding implantable cardioverter-defibrillators and cardiac resynchronization therapy

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Information is limited regarding the knowledge and attitudes of physicians in Saudi Arabia involved in the referral of patients for implantable cardioverter-defibrillator (ICD) and cardiac resynchronization and defibrillation therapy (CRT-D) devices implantation. As such knowledge is the key to provide the patient with an important treatment, we aimed for its assessment. We conducted personal interviews with physicians involved in treating patients with heart failure. We included all hospitals in Riyadh region that has no cardiac electrophysiology service. Every participant was met in person and received an oral questionnaire that aims to assess basic knowledge about ICD and CRT. 63 physicians were met from 13 hospitals (14 consultants and 49 specialist). 41% of participants use  $\leq 35\%$  as the LVEF criterion for ICD referral in patients with cardiomyopathy. 30% of participants use  $\leq 35\%$  as the LVEF criterion for CRT referral. 24% of participants were not aware about CRT as a therapy for patients with heart failure. 50% of the consultants use  $\leq 35\%$  for ICD and CRT

referral. 70% of the participants think that ICD may improve heart failure symptoms. 45% of participants who were about CRT do not think that CRT-D may prevent sudden death due to arrhythmia. There is a lack of knowledge with current clinical guidelines regarding ICD and CRT implantation. This finding highlights the need to improve the dissemination of guidelines to practitioners involved in managing patients with heart failure in an effort to improve ICD and CRT utilization.

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## 13. Device therapy in secondary hospital (without a cath lab): Feasibility, logistics and outcome

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Device therapy for conduction abnormalities, heart failure, primary or secondary SCD preventions is under delivered to requiring patients. Most of these devices are implanted at tertiary care centers in major cities of most countries. This makes the availability of these guideline guided therapies to a very small percentage of needy patients. Implant of such devices at a secondary hospital (without a cardiac cath lab) with training of previously novice hospital staff and available resources as well as support of the industry is an alternative and very viable option to have such important therapy delivered to requiring patients. The usage of simple-readily available-C-arm in operating theatre (OR) or the interventional radiology suite can be utilized for this purpose. OR nursing staff and radiology technicians can be trained –with help of nursing education department– to help in such procedures over a relatively short period. Technical support utilized from the vendors representatives is an alternative to face the lack of EP technicians in local or international market. The follow up of these patients in OPD can be organized with help of the vendors on regular basis under supervision of trained cardiologist/s. This model can help establish device therapy service at a secondary hospital without huge expenditure on infrastructure or facing the lack of recruitment of specialized technical support that is difficult to find –especially for smaller cities–. We present our experience at a 250 bed secondary hospital, with a relatively small cardiac unit (3 consultants, 5 hospitalists, 10 cardiac ECG/Echo techs) and no cath lab of introduction of this service with the help of nursing education department and vendors supplying these devices as well as OR and radiology departments. Training of radiology technicians and OR nursing staff on the basic procedural support with few in-service demonstration helped prepare adequate staff helping during implant procedures. Requirement of technical support from the vendor –as a condition for purchase of devices– during the implant and follow up clinics helped overcome the lack of EP technicians. After implant of more than 100 different devices (pacemakers, AICD and BiV-AICD) the process became much