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Research Article

### STUDY FOR CHRONICITY OF SYMPTOMLESS CORONARY VEIN INFECTION [CVI] IN PATIENTS OF TYPE-2 DIABETES MELLIT

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**Abstract:**

**Objective:** This research was held to select a sub-group of type-II diabetics having Coronary Vein Infections with two preset hazard causes to see if there is any assistance in perceiving these patients.

**Study Design:** A Reconsidering Study (RS).

**Place and Duration of Study:** Current study was held for the period of 02 years from October 2016 to October, 2018 at Punjab Cardiology Hospital, Lahore.

**Method:** For this research 626 patients were selected for thallium screening or treadmill stress testing. Abnormal consequence was endorsed by coronary arteriography. CVI demonstrates after arteriography interrelated with numerous risk aspects to know the relationship between variables and infections.

**Results:** 320 (51%) inmates had instability findings and 258 (41%) of them were accomplished with coronary arteriography. CVI was inveterate in 30%. In 55 (30%) patients Coronary vein bypass splicing (CVBS) was done, and in 45 (30%) catheter-based involvement (PCI) was completed and patients were not suitable for interference in 56 (45%) patients. Diabetes, Smoking, diabetic retinopathy, albuminuria and duration of bordering vascular infection were important conjecturers of asymptomatic CVI.

**Conclusion:** Our research concludes that there is a stout relationship between asymptomatic CVI and risk aspects in type-II diabetics.

**Key words:** Coronary vein infection, Asymptomatic, diabetes mellitus.

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## INTRODUCTION:

In diabetics, Coronary Vein infection is the main reason of death and sickness. Maximum of the diabetics expire due to coronary vein infection. Patients of diabetics involve in diabetic myocardium leads to a supplementary unadorned prediction. In patients of diabetics after advancement due to myocardium is severe diarrhea as associated to unstable myocardium or angina elevation. Patients of diabetic under-going revascularization are maximum at risk and pitiable pain existence. Though, several patients with dangerous awkward coronary vein infection have no indications of littleness of angina and can present with short-ness of breath and have exhaustion. The asymptomatic arrangement of the infection's delays dealing and analysis, while asymptomatic CVI regularity is generally found in the nonfiction from 15% to 85% based on existing accounts on CVI asymptomatic, the hazard of future cardiac expiry also led to the doctor to approve a technique to elicit the possible reasons of hostile patients with diabetics without CVI is similar to a nondiabetic patient. The ADA (American Diabetes Association) suggested the ID of coronary vein infection (CVI) in diabetes mellitus patients who are asymptomatic and with three or more additional hazard aspects. Likewise, for diabetic patients over sixty-two years European strategies suggested screening with a metabolic disorder more than 13 durations and linked with atherosclerotic danger aspects. Our study was reached to identify asymptomatic coronary vein infection in diabetic patients with hyper-tension and dyslipidemia.

## METHODOLOGY:

This reflective study was held in the Punjab Cardiology Hospital, Lahore for 02 years duration from October, 2016 to October, 2018. Patients with diabetes mellitus of type-2 for more than 5 years and age 41 to 42 with at-least 2 additional danger causes, i.e hyper-tension and dyslipidemia were comprised. Patients with preceding infarct sign of angina myocardial infarction were not taken on the source of angina pectoris, rose question; earlier re-vascularization processes CABG (Coronary artery bypass graft) PCI (Percutaneous coronary intervention, history of chronic obstructive

pulmonary disease (COPD) history, signs indicative of asthma, chronic use of un-stable respiratory, dipyridamole or aminophylline were not selected. In maximum patients 20% of the infection asymptomatic coronary vein infection screening technique was tested for patient and SPECT (computed tomography single-photon emission) exercise / medicine treadmill exercise 80%. Coronary arteriography suggested positive pressure test of perfusion defect in nuclear studies.

Every patient has blood sugar fastening, lipid profile 2Hrs of prandial blood glucose urea, electrolytes, HbA1C, resting EKG, creatinine, chest X-ray, resting echocardiogram and microalbuminuria. By Sokolow criteria, left ventricular hypertrophy was assessed and echo-cardiography in EKG. Using Bruce's typical protocol, the stress test on the treadmill was done. Pictures of the technetium 99 m-sestamibi or thallium 201 Single Photon Emission Computed Tomography (SPECT) were gained as per the American nuclear cardio-logy municipal endorsements. Using 200-degree Single Photon Emission Computed Tomography (SPECT) study was done using elliptical or circular acquisition for 60 projections at 22s per projection. The interpretation of the picture was based on semi quantitative and visual interpretation using 23 segment modules for each stress and resting picture. According to the standard protocol, CVI was diagnosed by coronary arteriography. Less than 0.07 P value displayed arithmetical importance. The step by step logistic regression examination was executed using the lactated Ringer's (LR) program of the Bone Marrow Donor Program (BMDP) statistical package 2008, and the full P Values of the test were calculated using SDSS version 2.0.

## RESULTS:

This study was permitted by local moral agency. 1,300 total patients were scrutinized during 2Yrscrutiny, of which 626 were selected for supplementary assessment. Out of which 46 (8.89%) patients were excluded for further examinations. However, 580 (91.11%) patients were agreed to complete noninvasive checks.

Table No 01: Descriptive Statistics for Various Variables

| Variables              | Frequency<br>n=(490) % | Variables                     | Frequency<br>n=(490) % |
|------------------------|------------------------|-------------------------------|------------------------|
| Male                   | (192) 45.20            | Urea mmol/I < 7.2             | (320) 34.2             |
| Female                 | (302) 63.2             | Urea mmol/I > 7.2             | (185) 38.7             |
| SYS.BP. < 140mmHg      | (74) 14.5              | Potassium mmol / I < 5.0      | (16) 3.5               |
| SYS.BP. >140mmHg       | (436) 96.2             | 5.3-8.0                       | (473) 96.9             |
| BMI Normal < 26.2      | (39.2) 8.5             | Na+ [mmol / I] < 146          | (78) 15.4              |
| Overweight 26 to 30.6  | (160) 32.2             | Na+ [mmol / I] 140-148        | (404) 85.6             |
| Obese > 32.0           | (403) 65.6             | Na+ [mmol / I] < 149          | (22) 4.5               |
| Age < 55 Years         | (80) 15.4              | Creatinine $\mu$ mol / I < 85 | (241) 48.5             |
| Age > 55 Years         | (430) 86.8             | Creatinine $\mu$ mol / I >85  | (266) 53.6             |
| Diabetes < 11 Yrs      | (276) 45.2             | >6.2                          | (07) 2.2               |
| Diabetes >11 Yrs       | (414) 63.2             | ABI(R) <1.2-2.3               | (93) 19.3              |
| TG < 2.1 mmol / I      | (343) 58.3             | Valvular Infection            | (102) 22.3             |
| TG >2.1 mmol / I       | (356) 53.2             | Others                        | (25) 3.4               |
| Non-smoker             | (390) 87.9             | (ABI)L <1.2                   | (92) 19.2              |
| Current smoker         | (94) 18.3              | 1.2-1.9                       | (469) 78.6             |
| Ex-smoker              | (34) 5.6               | > 2.2                         | (40) 7.1               |
| (FBG) mmol / I < 6.3   | (9) 2.2                | Non-significant ST-T Changes  | (93) 17.2              |
| (FBG) mmol / I > 6.3   | (583) 99.2             | Conduction defects            | (130) 25.3             |
| Hypertension < 6 Years | (163) 32.3             | 1.2-1.9                       | (392) 88.0             |
| Hypertension >6 Years  | (437) 78.8             | > 2.1                         | (19) 4.3               |
| TC < 5.0 mmol / I      | (89) 20.3              | LVH Positive                  | (198) 39.6             |
| TC >5.0 mmol / I       | (405) 83.2             | LVH Negative                  | (302) 62.3             |
| LDL < 2.5 mmol / I     | (257) 52.0             | LVDD                          | (982) 88.5             |
| LDL >2.5 mmol / I      | (342) 52.3             | LVH                           | (44) 8.2               |
| HDL < 1.6 mmol / I     | (98) 18.4              | ECHO Normal                   | (35) 6.2               |
| HDL >1.6 mmol / I      | (415) 93.3             | LVSD                          | (50) 9.2               |
| (HbA1C) < 8.0          | (63) 8.8               | (ECG) Normal                  | (328) 44.2             |
| (HbA1C) >8.0           | (338) 80.2             | (ECG) LVH                     | (247) 56.4             |
| NPDR                   | (203) 45.6             | (Albuminuria) Positive        | (228) 54.6             |
| PDR                    | (30) 5.0               | (Albuminuria) Negative        | (371) 65.4             |
| 2Hr PPBG mmol / I < 9  | (77) 12.2              | Normal CXR                    | (458) 83.2             |
| 2Hr PPBG mmol / I >9   | (323) 98.3             | Abnormal CXR                  | (332) 36.6             |

Data in n%, 2Hrs PPG-2Hrs Post Prandial Glucose, FBG-Fasting Blood Glucose; Triglycerides (TG); Non-Proliferative Diabetics Retinopathy (NPDR); (LVH) left Ventricular Hypertrophy; Proliferative Diabetics Retinopathy (PDR); Glycated Hemoglobin

(HbA1C); Total Cholesterol (TC); Chest X-Ray (CXR); Sodium (Na); Low Density Lipoprotein (LDL); High Density Lipoprotein (HDL); Body Mass Index (BMI); Right/Left ABI-Abkle Brachial Index Systolic Blood Pressure (SYS.BP).

The essentials are revealed in Table-I. The rate of abnormal positive exercise test and Myocardium

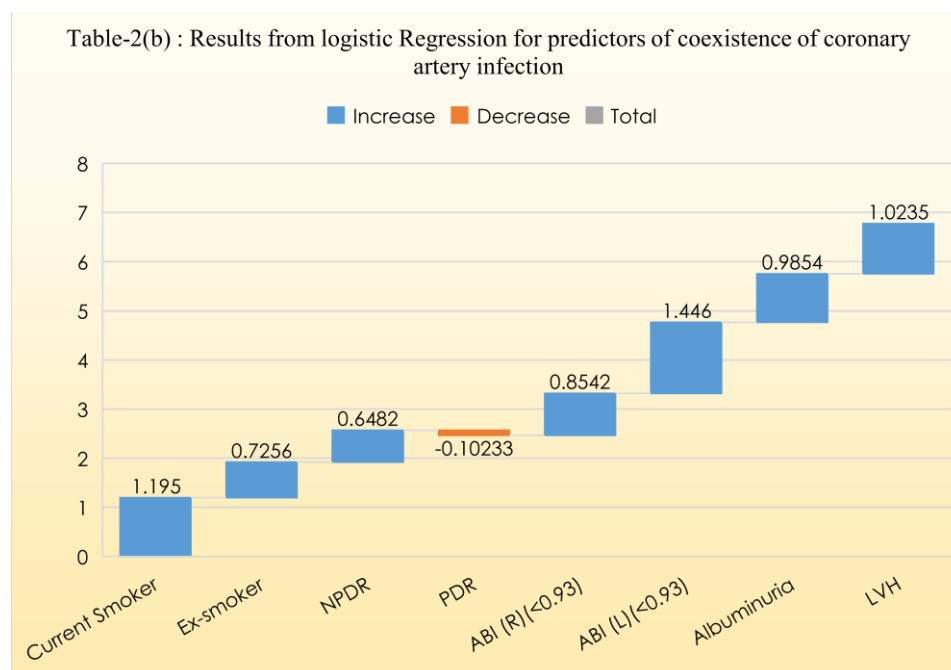
perfusion pictures was 49.84%, and the validation of CVI was established with arteriography in 23%.

**Table No 02 (a): Arteriography Finding in Patients with abnormal perfusion scan / stress test with regard to patient appearances**

| Variable (n)                    | Normal Coronaries<br>n=52 | (SVDCVI)<br>n=23 | DVCVI<br>n=38 | (TVCVI)<br>n=55 | Stress test /MPI<br>(238)<br>N(abnormal/n(t<br>otal) (%) |
|---------------------------------|---------------------------|------------------|---------------|-----------------|--|
| <b>Male (63)</b>                | (13) 27.3                 | (23) 26.4        | (24) 34.23    | (37)35.0        | 37/75(48.6%)   |
| <b>Female (90)</b>              | (32)55.4                  | (7) 12.20        | (18) 30.50    | (20) 32.70      | 190/398(48.0%)   |
| <b>P-Value</b>                  | 0.030*                    | 0.046*           | 1.230         | 0.023*          | 0.086  |
| <b>Age Yrs &lt; 48 (26)</b>     | (20) 25.6                 | (2) 2.3          | (5) 7.33      | (3) 4.16        | 98/198(47.5%)  |
| <b>Age Yrs &gt;48 (138)</b>     | (36)58.23                 | (18) 30.10       | (29) 48.49    | (46) 72.23      | 142/288 (45.2%)  |
| <b>P-Value</b>                  | 0.030*                    | 0.5230           | 1.2301        | 0.102           | 0.548  |
| <b>Sys.BP mmHg&lt;125(18)</b>   | (6) 20.3                  | (0.75) 2.5       | (4) 13.5      | (6) 19.6        | 30/61(50.0%)   |
| <b>Sys.BP mmHg&gt;125(130)</b>  | (39) 19.6                 | (19) 9.5         | (29) 13.5     | (40) 19.7       | 198/418(44.5%)   |
| <b>P-Value</b>                  | 0.972                     | 0.420            | 1.020         | 1.030           | 0.580  |
| <b>Diabetes &lt;09Yrs (47)</b>  | (19) 26.5                 | (7) 10.02        | (6) 8.5       | (12) 8.5        | 73/172(40.0%)  |
| <b>&gt;09 Yrs (107)</b>         | (25) 15.2                 | (16) 9.5         | (25) 15.3     | (35) 20.2       | 158/304(49.3%)   |
| <b>P-Value</b>                  | 0.086                     | 0.847            | 0.249         | 0.524           | 0.060*   |
| <b>BMI Normal (22)</b>          | (2) 1.69                  | (2) 2.30         | (2) 2.30      | (9) 52.2        | 18/41(43.3%)   |
| <b>Overweight (54)</b>          | (24) 44.36                | (10) 16.3        | (5) 6.3       | (20) 28.3       | 70/145(46.3%)  |
| <b>Obese (113)</b>              | (44)63.72                 | (18) 9.5         | (28) 19.4     | (28) 18.5       | 150/309(55.8%)   |
| <b>P-Value</b>                  | 0.723                     | 0.8542           | 0.0123*       | 0.0068*         | 0.412  |
| <b>Retinopathy None (48)</b>    | (25) 35.2                 | (9) 13.8         | (9) 13.8      | (9)13.8         | 75/203(36.3%)  |
| <b>NPDR (100)</b>               | (22) 28.3                 | (6) 09.6         | (6) 09.6      | (6) 09.6        | 150/262(54.5%)   |
| <b>PDR (10)</b>                 | (4) 19.8                  | (3) 10.2         | (3) 10.2      | (6) 36.8        | 16/26(68.2%)   |
| <b>P-Value</b>                  | 0.0785                    | 0.8457           | 0.5324        | 0.0325*         | <0.005*  |
| <b>Non-smoker (102)</b>         | (32) 20.2                 | (11) 5.8         | (23) 13.0     | (29) 16.1       | 165/372(40.3%)   |
| <b>Smoker (45)</b>              | (12) 19.3                 | (9) 15.6         | (13) 23.2     | (19) 30.3       | 60/95(70.3%)   |
| <b>Ex-smoker (10)</b>           | (2)10.3                   | (3) 20.2         | (2) 10.3      | (5) 40.3        | 13/26(49.9%)   |
| <b>P-Value</b>                  | 0.5244                    | 0.2356           | 0.8245        | 0.2543          | 0.004*   |
| <b>LDL-C&lt;3.2 mmol/I (80)</b> | (35) 28.3                 | (13) 12.0        | (18) 17.3     | (24) 21.2       | 118/251 (48.4%)  |
| <b>LDL-C&gt;3.2 mmol/I (89)</b> | (20) 14.23                | (16) 10.2        | (23) 19.2     | (33) 26.3       | 123/253(55.02%)  |
| <b>P-Value</b>                  | 0.014*                    | 0.929            | 0.620         | 0.430           | 0.4765   |
| <b>HDL-C&lt;1.1mmol/I (30)</b>  | (4) 8.2                   | (3) 5.3          | (9) 19.5      | (14) 33.2       | 46/85(63.6%)   |
| <b>HDL-C&gt;1.1mmol/I (142)</b> | (48) 26.2                 | (23) 12.4        | (30) 16.5     | (40) 21.5       | 198/412(48.6%)   |
| <b>P-Value</b>                  | 0.025*                    | 0.483            | 0.785         | 0.213           | 0.3948   |
| <b>HbA1C 8.0(15)</b>            | (5) 23.2                  | (3) 12.5         | (5) 25.3      | (3)12.5         | 25/49(45.6%)   |
| <b>HbA1C &gt;8.0(143)</b>       | (48) 26.3                 | (23) 12.3        | (31) 15.6     | (42) 20.3       | 198/412(50.3%)   |
| <b>P-Value</b>                  | 1.200                     | 0.724            | 1.264         | 0.48            | 0.585  |
| <b>ABI &lt;1.2(85)</b>          | (8) 5.5                   | (19) 12.5        | (26) 17.2     | (39) 25.2       | 85/98 (86.3%)  |
| <b>ABI &gt;1.8(18)</b>          | (4) 16.2                  | (5) 16.2         | (4) 16.2      | (7) 16.2        | 20/40 (60.0%)  |

Table-2 (a) reveals the link between numerous variables, positive discovery tests and the results of Arteriography. Proliferative non-proliferative, diabetes, diabetic retinopathy, smoking, peripheral vascular, proliferative non-

proliferative and albumin infections were distinct by a noteworthy relation-ship  $<1.2$  ABI.



\*Statistically significant; Data is n (%). Right / Left Ankle Brachial Index (ABI), Proliferative Diabetic Retinopathy (PDR), Nor Proliferative Diabetic Retinopathy (NPDR), Left Ventricular Hypertrophy (LVH).

Table-II (b) show the results of CVI logistic regression investigation appraisals. Left ventricular hypertrophy Retinopathy, peripheral vascular, albuminuria and Smoking infections were expressive.

### DISCUSSION:

In this study Comprehensive Antibiotic Resistance Database (CARD) is selects high atheroma genic danger aspects linked with diabetes in the discovery of CVI. Our study presented that there was a solid association amongst hazard issues and the existence of symptomless CVI and the earlier study Detection of Ischemia in Asymptomatic Diabetics (DIAD), there did not find any type of connection. In our research study, the influence of anomalous results was noted 50%, the verified angiocardiology was noted as 24%, and it is further noted that this degree was higher than utmost of the earlier described researches. Earlier studies before our studies reported that retroactive researches 70% have a very great commonness and data, that II diabetes researches validate the purpose of any type of study which shows a very low rate, and also this was not definite by the common standard. Coronary vein infection, diabetes, it was noted that 75% of patients with 52% (PM) post-mortem were enlarged with the great rate report of bowel infection and Goraya infections. Death the chronicity of unnatural pressure in 1156

patients in the center of Joslin Was 36%. There were 956 electro-cardiogram and thallium scintigraphy executed in the research arteriosclerosis and group of diabetes in Milan MISAD. Pressure tests conveyed the occurrence of irregularities in 14.2% of the patients, 7.5% of symptomless CVI and 35.3%, and occurrence of 65%. In this research study, the utmost occurrence of suggestive CVI was  $16.3 \pm 8.2$  years and the mean duration was related to the insertion of ageing, weighty and fat patients. During research revealed the patients, 21% had albuminuria, 42% had left ventricular hypertrophy, 88% had HbA1c  $> 6\%$  and 62% had atmosphere cardiac infection. In this research study, the feeling of myocardial insertion pictures to angio-graphically identify vein heart infection was around 68%, which was earlier stated by Kangetal. In which 142 diabetic patients were assessed by invasive angiography. In our research study, 42 patients with three-versle infections and four-patients with four vessel infection under-went coronary artery bypass graft. Correspondingly, 46 patients were positioned with percutaneous transluminal coronary angioplasty (PTCA) and artificial tube. Forty-four patients were not measured adequate for intervention; therefore, they were accessed for remedial action. The outcomes were correspondent to characteristic diabetic patients with by-pass PTCA revascularization research barognosis. Likewise, the small-scale experiment of (asymptomatic cardiac



ischemia) ACI discovered that revascularization decreased negative out-comes in asymptomatic patients. The 7 years endurance rate of asymptomatic diabetic patients has been displayed to be greater in coronary vein operation proceedings.

### CONCLUSION:

According to resultant statistics of our research study, it was observed that high risks of diabetic-II were noted for great-risk (CVI) coronary vein infection due to the existence of abnormal amount of lipids and hyper-tension and 26% of the patients with coronary artery infection were detected to be angio-graphically verified. It is suggested to carry the discovery of high-risk type-II diabetics for asymptomatic coronary vein infection (CVI), be short of cost helpfulness and out-come data should be measured.

### REFERENCES:

1. Nekaies, Y., B. Baudin, M. Sakly, and N. Attia. "Plasma proprotein convertase subtilisin/Kexin type 9 (PCSK9) is associated with Lp (a) in non-CAD type 2 diabetic patients." *Archives of Cardiovascular Diseases Supplements* 10, no. 1 (2018): 116.
2. Wu, Zhifang, Rui Xi, Sijin Li, Haiyan Liu, Jingxin Ma, and Bin Zhao. "Early Prediction of Cardiac Events for Patients with diabetes using SPECT-MPI." *Journal of Nuclear Medicine* 59, no. supplement 1 (2018): 1552-1552.
3. Kai, H., Niiyama, H., Rikitake-Iwamoto, Y., Harada, H., Katoh, A., Furukawa, Y., Kimura, T. and CREDO-Kyoto Cohort-1 Investigators, 2018. 3023 Effects of low blood pressure on cardiovascular events in diabetic patients with coronary artery disease after revascularization-The CREDO-Kyoto cohort-1. *European Heart Journal*, 39(suppl\_1), pp.ehy563-3023.
4. Coppola, Adriana, LivioLuzi, TizianaMontalcini, Andrea Giustina, and Carmine Gazzaruso. "Role of structured individual patient education in the prevention of vascular complications in newly diagnosed type 2 diabetes: The Individual Therapeutic Education in Newly Diagnosed type 2 diabetes (INTEND) randomized controlled trial." *Endocrine* 60, no. 1 (2018): 46-49.
5. Osedeme, Fenose, Sylvester Olubolu Orimaye, Jones Antwan, Timir K. Paul, G. Jerry, Matthew J. Budoff, and Hadii M. Mamudu. "Individual and contextual factors associated with subclinical atherosclerosis in diabetes patients in rural Central Appalachia." (2018).
6. Batista, Daniel Valente, Whady Hueb, Jaime Linhares Filho, Eduardo Lima, Paulo Rezende, Diogo Azevedo, Eduardo Martins et al. "IMPACT OF CHRONIC KIDNEY DISEASE AMONG DIABETIC PATIENTS WITH STABLE CORONARY DISEASE UNDERGOING SURGERY, ANGIOPLASTY OR MEDICAL TREATMENT IN A 10 YEAR FOLLOW-UP." *Journal of the American College of Cardiology* 71, no. 11 (2018): A262.
7. Kundu, A., Sardar, P., O'Day, K., Chatterjee, S., Owan, T., & Abbott, J. D. (2018). SYNTAX Score and Outcomes of Coronary Revascularization in Diabetic Patients. *Current cardiology reports*, 20(5), 28.
8. Mishra, Mritunjay Kumar, Neha V. More, and Chanchal Garg. "ROLE OF ADIPONECTIN AND HS-CRP WITH GLYCEMIC CONTROL IN CORONARY ARTERY DISEASE WITH AND WITHOUT TYPE-II DIABETES MELLITUS." *INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH* 7, no. 6 (2018).
9. Raghavan, Sridharan, Wenhui G. Liu, David R. Saxon, Gary K. Grunwald, Thomas M. Maddox, Jane EB Reusch, Seth A. Berkowitz, and Liron Caplan. "Oral diabetes medication monotherapy and short-term mortality in individuals with type 2 diabetes and coronary artery disease." *BMJ Open Diabetes Research and Care* 6, no. 1 (2018): e000516.
10. Jiao, Xiaolu, Jiqiang He, Yunyun Yang, Song Yang, Juan Li, and Yanwen Qin. "Associations between circulating full-length angiopoietin-like protein 8 levels and severity of coronary artery disease in Chinese non-diabetic patients: a case-control study." *Cardiovascular diabetology* 17, no. 1 (2018): 92.
11. Shawky, A., Zaki, T., Nammass, W., Mortada, A. and Zaki, H., 2018. CRT-93 Prevalence of Internal Pudendal Artery Disease in Diabetic Patients with Erectile Dysfunction and Angiographically Documented Multi-vessel Coronary Artery Disease. *JACC: Cardiovascular Interventions*, 6(2 Supplement), p.S30.
12. Clerc, O.F., Fuchs, T.A., Stehli, J., Benz, D.C., Gräni, C., Messerli, M., Giannopoulos, A.A., Buechel, R.R., Lüscher, T.F., Pazhenkottil, A.P. and Kaufmann, P.A., 2018. Non-invasive screening for coronary artery disease in asymptomatic diabetic patients: a systematic review and meta-analysis of randomized controlled trials. *European Heart Journal-Cardiovascular Imaging*.
13. Konstantinidis, D., Tsioufis, C., Dimitriadis, K., Kasiakogias, A., Galanakis, S., Iliakis, P., Nikolopoulou, L., Liatakis, I., Aragiannis, D., Kyriazopoulos, K. and Andrikou, E., 2018. P4479 Isolated systolic hypertension and combined systolic-diastolic hypertension for prediction of new-onset diabetes mellitus: Data

- from an 8-year-follow-up study. *European Heart Journal*, 39(suppl\_1), pp.ehy 563-P4479.
14. Odum, Ehimen Phyllis, and Ekenechukwu Esther Young. "Elevated cardiac troponin I, creatine kinase and myoglobin and their relationship with cardiovascular risk factors in patients with type 2 diabetes." *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 12, no. 2 (2018): 141-145.
  15. Nakas G, Bechlioulis A, Marini A, Vakalis K, Bougiakli M, Giannitsi S, Nikolaou K, Antoniadou EI, Kotsia A, Gartzonika K, Chasiotis G. The importance of anginal symptoms' characteristics for the prediction of coronary artery disease in a cohort of stable patients in the modern era. *Hellenic Journal of Cardiology*. 2018 Jun 8.