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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ref | Time | doi | PMID | Relation | Variable |  | Gender | Calcification | Complications | CKD stages | sample |
| (1) | 2001 | 10.1159/000046119 |  | associates | Osteopontin | r=0.749 (age- and sex-matched) | x | Aortic calcification index (ACI) |  | 5D (HD) | 71 |
| (2) | 2013 | 10.1186/1471-2369-14-221 | 24119158 | causes | Male sex | All patients: OR 4.218 (1.403-14.207)  eGFR < 30: OR 4.167 (1.050-20.178) | v | Abdominal aortic calcification (AAC) (Kauppila Index) |  | 3-4 | 178 |
|  |  |  |  |  |  | Lack of a FEP-FGF23 correlation in patients with severe AAC (KI > 5) suggested a role for an impaired phosphaturic response to FGF23 but not to PTH in AAC. Logistic and zero-inflated analysis confirmed the independent association of age, CKD stage, male gender and CP with AAC, and also identified a threshold FEP/FGF23 ratio of 1/3.9, below which the chances for a patient of presenting severe AAC increased by 3-fold. |  |  |  |  |  |
| (3) | 2017 | 10.1186/s12882-017-0480-2 | 28253835 | complications | AAC score | OR 1.19 (1.07–1.30) | v | AAC | Coronary artery disease | 5D | 90 |
|  |  |  |  |  | Male gender | Univariate: 2.59 (1.00–6.68)  Multivariate: 2.73 (0.95–7.82) |  |  |  |  |  |
| (4) | 2012 | 10.1371/journal.pone.0039241 | 22723973 | complications | Male gender | β = -0.34 (-13.45– -4.48) | v | AAC | Left ventricular mass index | 3 | 120 |
|  |  |  |  |  | Mean femoral Z-score | β = -0.23 (-4.75– -0.85) |  |  |  |  |  |
|  |  |  |  | associates | Male gender | +24% compared to no calcification |  |  |  |  |  |
| (5) | 2009 | 10.1111/j.1525-1594.2009.00814.x | 19681840 | causes | Male gender | HR 0.87 (0.56–0.91, p=0.87) | v | Coronary artery calcification score (CACS) |  | 5D (HD) | 102 |
|  |  |  |  |  | HD vintage | HR 0.85 (0.58–0.95)  Independent of other influencing factors, HD vintage and serum PTH levels were significant determinants of low bone mass and T-scores in all anatomical sites whereas fetuin-A was an independent predictor in proximal radius, femoral neck, and trochanter |  | CACS |  |  |  |
|  |  |  |  |  | Serum PTH | Standard regression coefficient -0.21– -0.33 |  | Bone mineral densities (BMD) |  |  |  |
|  |  |  |  |  | Fetuin-A | Standard regression coefficient -0.29– -0.41 |  | BMD |  |  |  |
| (6) | 2021 | 10.1186/s12882-021-02251-y | 33541279 | complications | Male gender | β = 31.0 | v |  | Maximal ergometry workload (WMAX) | 4-5 | 174 |
|  |  |  |  |  | AAC score | β = -1.44 |  | AAC | WMAX% < 50% |  |  |
|  |  |  |  |  |  | AAC and TnT showed fair predictive power for WMAX% less than 50% of the expected value with AUCs of 0.70 and 0.75, respectively. |  |  |  |  |  |
| (7) | 2013 | 10.1186/1471-2369-14-122 | 23758931 | causes | Gender | β = -0.163 | v | Common carotid intima-media thickness (ccIMT) |  | 5D (HD) | 81 |
| (8) | 2014 | 10.1159/000360230 | 24847332 | complications | Male gender | HR 2.354 (1.371 – 4.042) | v | AAC | Cardiovascular mortality | 5D (HD) | 712 |
|  |  |  |  |  | AAC Grade 3 | HR 2.497 (1.237 – 5.043) |  |  | Cardiovascular mortality |  |  |
|  |  |  |  |  |  | HR 1.604 (1.058 – 2.431) |  |  | All-cause mortality |  |  |
| (9) | 2017 | 10.1159/000360230 | 27988970 | causes | Male gender | total iliac: 1.00 (0.25-1.75) vs. 0.50 (0.13-1.13) | v | Iliac vascular calcification grade |  | 5T | 205 |
|  |  |  |  |  | Male gender | external iliac: 1.00 (0.00-1.50) vs. 0.00 (0.00-0.50) |  |  |  |  |  |
|  |  |  |  |  | Male gender | left common iliac: 1.00 (0.50-2.00) vs. 1.00 (0.00-1.88) |  |  |  |  |  |
|  |  |  |  |  |  | \*Not adjusted for age |  |  |  |  |  |
|  |  |  |  |  | Older than 55 yrs | 1.25 (0.50-2.00) vs. 0.50 (0.00-1.16) |  | Total iliac calcification (without distal aortic segment) |  |  |  |
|  |  |  |  |  |  | Median total calcification score was 3 (2.2-3) in the patients declined for renal  transplantation, with similar results in the different regions of the iliac arteries. |  |  |  |  |  |
| (10) | 2020 | 10.1186/s12882-020-1710-6 | 32033584 | causes | Male gender | OR 4.4 (1.6–11.1) | v | Inferior epigastric artery & CACS |  | 5-5D | 149 |
|  |  |  |  |  |  | Male -x copeptin: β = −0.08 (0.31) |  |  |  |  |  |
|  |  |  |  |  | Copeptin (1-SD increase) | OR 1.6 (1.1–2.6) |  |  |  |  |  |
|  |  |  |  |  |  | Mechanisms of vascular calcification in CKD. In the setting of uraemic milieu, activation of renin-angiotensin and vasopressin systems,  upregulation of sodium-dependent phosphate transporter Pit-1 promotes osteochondrocytic transformation and apoptosis of vascular smooth muscle cell (VSMC) and, in consequence, accelerated vascular calcification |  |  |  |  |  |
|  |  |  |  |  | Higher Age (1-SD increase) | OR 2.5 (1.5–4.1) |  |  |  |  |  |
|  |  |  |  |  | Diabetes | OR 23.2 (2.5–210.5) |  |  |  |  |  |
| (11) | 2011 | 10.2215/CJN.03910411 | 21940840 | Associates | Female gender | Female -> Osteoprotegerin: 10.2% (0.2%– 21.3%) | v |  |  | 1-5 | 226 |
|  |  |  |  | Causes | Osteoprotegerin (OPG) | Reference |  | Aortic pulse wave velocity |  |  |  |
|  |  |  |  |  |  | Tertile 2 (5.05 to 7.45 pmol/L): 1.06 (0.97– 1.15) |  |  |  |  |  |
|  |  |  |  |  |  | Tertile 3 (7.46 to 22.31 pmol/L): 1.10 (1.01– 1.20) |  |  |  |  |  |
| (12) | 2015 |  | 26629071 | associates | 5-hydroxyvitamin D | r = 0.193 | x | Kauppila score |  | 5D (HD) | 126 |
| (13) | 2019 | doi.org/10.1186/s12882-019-1235-z | 30777028 | causes | Total body bone mineral density (tBMD) in female | β = −0.27, se = 0.12, p = 0.03 | v | CACS |  | 5 | 174 |
|  |  |  |  |  | BMD at legs in female | β = −0.28, se = 0.12, p = 0.02 |  |  |  |  |  |
|  |  |  |  |  |  | Multivariate generalized linear model  (GLM) analysis adjusted for age, diabetes and hsCRP showed that in females per SD higher CAC score (1057 AUs) was  predicted by either per SD (0.13 g/cm2) lower tBMD or per SD (0.17 g/cm2) lower BMD at legs. **No such associations were found in male** **ESRD patients**. |  |  |  |  |  |
| (14) | 2017 | 10.1111/eci.12718 | 28036114 | Causes | Male gender | After adjustments for confounders by GLM (age, gender, BMI, diabetes, inflammation), only age, male gender, diabetes and statins remained significantly related to high CAC score. | v | CACS |  | 5D-5T | 240 |
|  |  |  |  |  |  | Model with hsCRP: estimate = −0.38, se = 0.11, p = 0.005 |  |  |  |  |  |
|  |  |  |  |  |  | Model with IL-6: estimate = 0.40, se = 0.13, p = 0.002 |  |  |  |  |  |
|  |  |  |  |  |  | Model with TNF but without statins: estimate = 0.35, se = 0.13, p = 0.008 |  |  |  |  |  |
|  |  |  |  |  | Statins | Model with hsCRP: estimate = 0.29, se = 0.11, p = 0.009 |  |  |  |  |  |
|  |  |  |  |  |  | Model with IL-6: estimate = 0.44, se = 0.14, p = 0.001 |  |  |  |  |  |
|  |  |  |  | Modifier | Statins | 0 (0-531) AUs to 273 (0-1256) AUs after 1.5 years of RRT |  | CACS |  |  |  |
|  |  |  |  | Complications | CACS | HR 1.52 (1.12-2.06) |  |  | Mortality |  |  |
| (15) | 2015 | 10.3109/0886022X.2015.1077316 | 26336882 | complications | Simple  vascular calcification score (SVCS) | https://www.tandfonline.com/na101/home/literatum/publisher/tandf/journals/content/irnf20/2015/irnf20.v037.i09/0886022x.2015.1077316/20151009/images/medium/irnf_a_1077316_f0002_c.jpg | v | SVCS | Vascular access flow (DU-Qa) | 5D (HD) | 50 |
|  |  |  |  |  | Male gender | P = 0.575 |  |  |  |  |  |
| (16) | 2008 |  | 19259046 | causes | Male gender | +27% compared to female (80/91 vs. 36/59) | v | Arterial intimal & media calcification (AIC & AMC) |  | 5D (HD) | 150 |
|  |  |  |  |  |  | The present results suggest a few emerging risk factors for the occurrence of arterial  calcifications, especially of AIC in our HD patients, such as age older than 55, male gender, diabetes, as well as higher CRP (> 4.5 mg/L), blood leucocytes (> 6.5 × 109L), corrected total serum Ca (> 2.35 mmol/L), serum triglycerides (> 1.8 mmol/L), PP (> 60 mmHg) and BMI (> 23 kg/m2). |  |  |  |  |  |
|  |  |  |  |  |  | Our findings of significantly higher percentages of ACA in patients who were younger (under  55 yrs at inclusion and 45 yrs at the start of HD), predominantly female, without diabetes and with higher percentages of K/DOQI guideline recommended levels for serum Ca, are supportive of the previous reports [11, 15, 17]. |  |  |  |  |  |
| (17) | 2010 | 10.2215/CJN.02560310 | 20576822 | associates | Male gender | R = -0.181, p = 0.016 | v | Gensini score |  |  |  |
|  |  |  |  |  |  | The Gensini score values significantly correlated in univariate analysis with gender (R = -0.181, P = 0.016), presence of hyperension (R = 0.203, P = 0.007), HDL cholesterol level (R = -0.158, P = 0.047), eGFR (R = -0.315, P 0.001), iPTH (R = 0.152; P = 0.044), FGF 23 (R = 0.868; P = 0.001), and fetuin A levels (R = 0.491; P = 0.001) but not with the vitamin D values. |  |  |  |  |  |
| (18) | 2008 | 10.1111/j.1365-2362.2008.02032.x | 19021697 | complications | Low fetuin-A | HR 2.3 (1.2–4.5) | x | Fetuin-A inhibits vascular calcification | Mortality | 5D (HD) | 222 |
|  |  |  |  |  |  | Patients with low fetuin-A levels (< median) had higher mortality (Hazard ratio ‘HR’ 2·2; CI 1·4–3·5, P< 0·001), but this association was lost after adjustment for age, gender, comorbidities score, dialysis vintage and inflammation (CRP > median). In inflamed patients with low fetuin a significantly independent association with mortality (HR 2·3; CI 1·2–4·5, P= 0·01) was observed compared to non-inflamed patients with high fetuin-A, after adjusting for the same variables. |  |  |  |  |  |
| (19) | 2016 | 10.15386/cjmed-515 | 27004031 | complications | male gender | HR 14.96 (2.09-106.98) | v | vascular or  other soft tissue calcifications (VC) by plain film | all-cause mortality | 5D (HD) | 92 |
|  |  |  |  |  | VC score | HR 1.387 (1.095-1.757) |  |  | Cardiovascular mortality |  |  |

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