


# Risk of chronic kidney disease following microscopic hematuria differs by sex

| Design  | Analysis  | Results   |                     |                      |  |  |              |           |           |            |       |                 |                     |                     |                     |     |                 |                     |                     |                      |
|---|---|---|---------------------|----------------------|--|--|--------------|-----------|-----------|------------|-------|-----------------|---------------------|---------------------|---------------------|-----|-----------------|---------------------|---------------------|----------------------|
| <p><b>Retrospective Cohort study</b></p>  <p><b>Healthy adults who underwent regular health examinations</b><br/>N= 232 220</p> <p><b>4.8 years of follow-up</b></p> | <p>Microscopic hematuria: <math>\geq 5</math> red blood cells/HPF</p> <p>↓</p> <p>Measurement at 2 consecutive visits, 4 groups:</p> <p>(a) No hematuria at both visits<br/>(b) Hematuria followed by no hematuria<br/>(c) No hematuria followed by hematuria<br/>(d) Persistent hematuria</p> <p>CKD: GFR&lt;60 ml/min/1.73 m<sup>2</sup> or proteinuria</p> | <p>Multivariable-adjusted hazard ratios (95% confidence interval) for incident chronic kidney disease</p> <table border="1"> <thead> <tr> <th></th> <th>No hematuria</th> <th>Regressed</th> <th>Developed</th> <th>Persistent</th> </tr> </thead> <tbody> <tr> <td>Women</td> <td>Ref<br/>(95% CI)</td> <td>1.38<br/>(0.89-2.13)</td> <td>2.52<br/>(1.86-3.41)</td> <td>3.92<br/>(2.88-5.34)</td> </tr> <tr> <td>Men</td> <td>Ref<br/>(95% CI)</td> <td>2.80<br/>(1.78-4.40)</td> <td>4.44<br/>(3.18-6.18)</td> <td>8.34<br/>(5.92-11.74)</td> </tr> </tbody> </table> <p>• <i>The association was stronger in men than in women</i></p> |                     |                      |  |  | No hematuria | Regressed | Developed | Persistent | Women | Ref<br>(95% CI) | 1.38<br>(0.89-2.13) | 2.52<br>(1.86-3.41) | 3.92<br>(2.88-5.34) | Men | Ref<br>(95% CI) | 2.80<br>(1.78-4.40) | 4.44<br>(3.18-6.18) | 8.34<br>(5.92-11.74) |
|   | No hematuria  | Regressed   | Developed           | Persistent           |  |  |              |           |           |            |       |                 |                     |                     |                     |     |                 |                     |                     |                      |
| Women   | Ref<br>(95% CI)   | 1.38<br>(0.89-2.13)   | 2.52<br>(1.86-3.41) | 3.92<br>(2.88-5.34)  |  |  |              |           |           |            |       |                 |                     |                     |                     |     |                 |                     |                     |                      |
| Men   | Ref<br>(95% CI)   | 2.80<br>(1.78-4.40)   | 4.44<br>(3.18-6.18) | 8.34<br>(5.92-11.74) |  |  |              |           |           |            |       |                 |                     |                     |                     |     |                 |                     |                     |                      |

**CONCLUSION:** Microscopic hematuria was associated with chronic kidney disease risk in both men and women. Persistent hematuria may help identify individuals at high risk for CKD.