


People with diabetes and unmonitored renal function are at increased risk of an adverse outcome: cohort study.

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Background

- Current literature on unmonitored renal function
 - A study in 2005 by Middleton et al found the prevalence of **eGFR** screening to be 82% in people with diabetes over two years; in 2007 New et al found this prevalence to be 92%
 - Middleton et al reported the prevalence of **proteinuria** screening using ACR as 55.2% over two years
 - The association between monitoring renal function and **adverse outcomes** has not previously been investigated
 - Sadek et al reported in 2012 that people not on diabetes disease registers appear to receive suboptimal care

Study aim

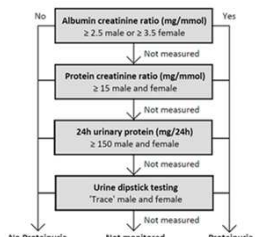
- Compare risks for adverse outcomes in people with diabetes between groups determined by monitoring of renal function.

Method

- Diabetes cohort taken from the QICKD trial (N=35,502)
- GP records used to determine monitoring of renal function
- Composite outcome: stroke, myocardial infarct, cardiac revascularisation, end stage renal failure, or death
- Logistic regression analysis
- Known cardiovascular and renal risk factors controlled for

Method

- Monitoring renal function, measure both
 - serum **creatinine**, to calculate eGFR, and
 - **proteinuria**, hierarchy of clinical tests:

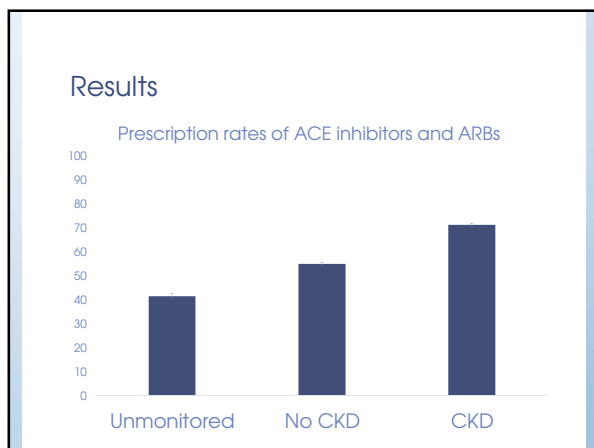
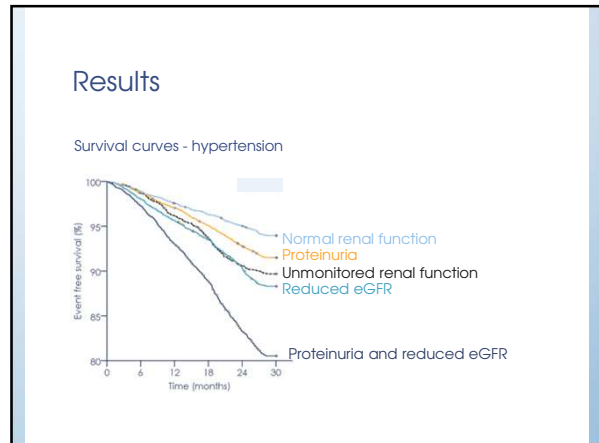
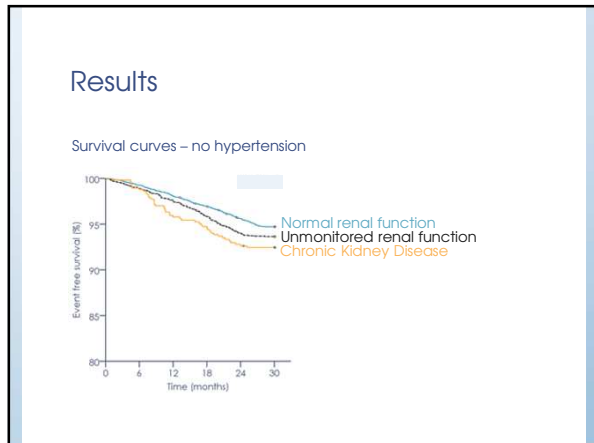


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    graph TD
      A["Albumin creatinine ratio (mg/mmol)  
≥ 2.5 male or 3.3 female"] -- No --> NP["No Proteinuria"]
      A -- Yes --> P["Proteinuria"]
      A -- Not measured --> B["Protein creatinine ratio (mg/mmol)  
≥ 15 male and female"]
      B -- No --> NP
      B -- Yes --> P
      B -- Not measured --> C["24h urinary protein (mg/24h)  
≥ 150 male and female"]
      C -- No --> NP
      C -- Yes --> P
      C -- Not measured --> D["Urine dipstick testing  
'Trace' male and female"]
      D -- No --> NP
      D -- Yes --> P
      D -- Not measured --> NM["Not monitored"]
      
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Results

- 12.6% had unmonitored renal function
 - 4.4% serum creatinine not measured
 - 9.8% proteinuria not measured
- People with unmonitored renal function
 - Significantly **higher incidence of adverse vascular and renal outcomes** than those with normal renal function
 - Odds ratios with no hypertension (1.33, 95% CI 1.07 to 1.66) and hypertension (1.42, 95% CI 1.17 to 1.72), compared to normal renal function and no hypertension
 - **Lower prescription rates** of ACE inhibitors and ARBs (41.4%, 95% CI 40.2 to 42.6%) than people with no evidence of CKD (54.8%, 95% CI 54.1 to 55.4%) and people with CKD (71.1%, 95% CI 70.3 to 71.9%)



- ### Principal findings
- People with diabetes whose renal function is not monitored
 - have more adverse outcomes than those with normal renal function and those with proteinuria
 - appear to receive suboptimal antihypertensive therapy

- ### Discussion
- **Why are people with diabetes and unmonitored renal function more likely to have an adverse outcome?**
 - Mixture of good and bad renal function
 - Not monitored because they appear healthy
 - Not monitored because they decline

