Important New Evidence Service

In Partnership with The Centre for Medicines Optimisation at Keele University

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Lipid modification: Underuse of QRISK2 and the mismatch between initiation of statins and cardiovascular disease risk

A new publication suggests there is underuse of cardiovascular risk assessment tools such as QRISK2 when helping to decide who will benefit from prescribing of a statin for primary prevention. The research suggests that this leads to undertreatment of high-risk groups and overtreatment of low-risk groups. 73% of patients initiated on statins were found to have no QRISK2 score formally recorded. In those who did have QRISK2 recorded, 65% of patients at higher risk of cardiovascular disease (CVD) (>20% 10-year risk) were not initiated on statins, and 17% of all statin initiations were to low-risk patients (<10% 10-year risk).
This study highlights the need for greater education and awareness around targeting statin therapy, and an emphasis on shared-decision making with patients that is based on personalised QRISK2 scores, alongside careful recording of this activity.

Reference: Finnikin S, Ryan R, and Marshall T. Statin initiations and QRISK2 scoring in UK general practice: a THIN database study. Br J Gen Pract 2017; bjgp17X693485 (Full version online; an abridged version was published in print).
See also: *Tailored education support* and *Information for the public,* for use with Cardiovascular disease: risk assessment and reduction, including lipid modification, NICE Clinical Guideline 181.

What do we know already?

- Formal CVD risk assessment to guide preventative interventions for blood pressure and lipid modification has been advocated for 20 years or more in the UK and internationally.
- In 2008, NICE guidance on lipid modification set a threshold to offer a statin for primary prevention at an estimated 10-year risk of a CVD event (*myocardial infarction or stroke*) of ≥20%. The Framingham risk equation was initially recommended to assess CVD risk (*UKPDS in type-2 diabetes*), but was updated in 2012 to recommend use of QRISK2.
- In 2014, NICE guidance on lipid modification was reissued (CG181). Use of QRISK2 was again recommended, including for people with type-2 diabetes, but the threshold to offer statins was reduced to an estimated 10-year risk of **≥10%.** To help prioritise people for formal risk assessment, NICE recommended using estimated risks based on factors already recorded in primary care electronic systems. Nowadays, GP systems are configured to provide an estimate of QRISK2. (**NB. QRISK2 is to be superseded by QRISK3 in 2018 - see: https://qrisk.org/three/)*
- Fundamental to CG181 is the offer of advice and support to help a patient make lifestyle changes to reduce their CVD risk. Decisions about starting statins should be taken after an informed discussion of risks and benefits, taking into account additional factors, such as potential benefits from lifestyle modification, informed patient preference, comorbidities, polypharmacy, general frailty and life expectancy.
- The lowering of the threshold for statin initiation has caused considerable controversy, including concerns about workload and claims about overreliance on statins instead of lifestyle modification (‘*medicalisation*’), wholesale prescribing of statins to large populations (‘*statinisation*’), and assertions that adverse effects might do more harm than good in low-risk people. Despite this, robust evidence suggests statins are safe and well-tolerated (*for further discussion, see an earlier KINES Update [login required]*).

What does this evidence add?

- This new cohort study provides an insight into trends in statin initiation for primary prevention in recent years, the recording of QRISK2 scores and the impact of the 2014 NICE guidance.

- A large growth in statin use was seen when simvastatin came off-patent in 2003, with initiation rates peaking in 2006 (as has also been observed by others). Statin initiation rates subsequently halved by 2015. Possible reasons may include saturation of the number of people willing and able to take these drugs. The reporting of observational studies (contradicting trial data), which highlighted the harms of statin use, may also have deterred clinicians from prescribing, and reduced patients' willingness to accept statins.
- The study found that only about **one-quarter** of patients initiated on statins after 2012 had a QRISK2 score recorded. There may have been situations where this was calculated but not coded, and, somewhat reassuringly, recording did increase between 2012 and 2015 in this study. However, this finding is noteworthy given this is essential information for shared decision-making and for guiding eligibility for offering statin treatment.
- The authors comment that the reduced risk threshold in the 2014 NICE guideline did not result in the massive increase in statin initiations that was anticipated. An encouraging finding is the small increase that was seen in statin initiation in people at 'intermediate-risk' (10-year risk between 10 to 19.9%). However, there was an unexpected decline in initiations in people at high CVD risk (>20% 10-year risk).
- It is unclear why, since 2012, one in six people with low CVD risk (<10% 10-year risk) had a statin initiated. This implies that some clinicians may have an incomplete understanding of CVD risk or choose to behave differently and not consider QRISK2. As such, there may be a need for more education on CVD risk assessment.
- This study highlights the importance of reviewing practice protocols for assessing CVD risk, including the formal recording of these consultations, and emphasises the need for GP and practice audits.

Study details

Participants:

- The study analysed data contributed to The Health Improvement Network (THIN) database by GP practices in England and Wales. The cohort included anonymised records from 248 practices that had provided data from 2000 onwards and met certain data quality standards.
    - A cohort was created of statin-naïve patients without CVD between January 2000 and December 2015.
    - A total of 1,422,664 patients over the age of 40 years were identified. Patients remained in the cohort until aged 85 years (or statin initiation, death, cardiovascular event, or leaving the practice).
- Patients with CKD stages 3-5, type-1 diabetes and familial hypercholesterolaemia were excluded.

Intervention and comparison:

- CVD risk scores (calculated using QRISK2, available from 2012) and statin initiations were identified. The QRISK2 scores had to be coded automatically into the patient record, or recorded manually.
- Rates of QRISK2 recording were calculated and relationships between CVD risk category (low-, intermediate-, and high-risk: <10%, 10–19.9%, and ≥20% 10-year CVD risk) and statin initiation were analysed.

Outcomes and results:

- 217,860 (15.3%) of the 1,422,664 patient cohort were initiated on a statin over the 15 year study period.
- 151,788 (10.7%) of the total cohort had at least one CVD risk score (QRISK2) recorded. The vast majority (90.2%) of these people did not go on to have a statin prescribed.
- Among the 14,949 patients who were initiated on a statin after 2012 (i.e. following the introduction of QRISK2), 27.1% had a documented QRISK2 score.
- Since 2012:
    - Of the 91,735 people who had a low-risk score recorded in their records, 2,481 (2.7%) were initiated on statins. This represents 17% of the total population initiated on a statin for whom a QRISK2 score was recorded.
    - Of the 40,272 people who had an intermediate-risk, 5,545 (13.8%) were initiated on a statin (representing 37% of all individuals with a QRISK2 score who were initiated on a statin).
    - Of the 19,781 people who were at high-risk, 6,923 (35%) were initiated on a statin (represents 46.3% of people prescribed a statin following a recorded QRISK2 assessment).
- Statin initiation rates halved from a peak in 2006 of 34.41 initiations/1,000 patient years to 17.26 in 2015.
- Comparing statin initiations before and after the publication of the 2014 NICE guideline, initiations declined in high-risk patients (from 33.7% to 33.1%) but increased in intermediate-risk patients (12.8% to 14.4%).

Level of evidence: Level 2 (limited quality patient-oriented evidence) according to the SORT criteria.

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