Reviewer’s report

Title: Should heart age calculators be used alongside absolute cardiovascular disease risk assessment?

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Reviewer: Sandra Ofori

Reviewer’s report:

Overall well written and thought provoking article.

"Heart age" is a concept designed to communicate risk especially relevant to groups who by virtue of age and gender, will have low absolute short term risk but their constellation of risk factors put them at high lifetime risk. The authors are right to note that heart age is not appropriate to use as a guide to medication prescription and would naturally differ when different 'calculators' are used. This may cause confusion when several calculators are used for the same patient.

However, the basis for this article seems to be that heart age is, or can be used to drive medication prescription and that this is supported by guidelines. The JBS3 and NHS guidelines do not advocate for the use of heart age to guide prescription. They clearly state that in cases where lifestyle changes are not enough to modify risk factors, medication MAY be needed. Furthermore, even absolute risk scores do not reflect a particular individual's actual risk and the whole concept of CVD prevention will be lost on the individual, if their risk is not appreciated by them. The JBS3 heart age calculator presents pictoral charts for interval (5, 10 year etc) outcomes with or without intervention (which could be only lifestyle intervention) which is geared towards enhancing risk communication.

In the last section of the article, "what can we use instead of heart age", the statin choice decision aid is recommended instead of heart age. The two address different levels of risk communication and should not be seen as alternatives but rather complementary depending on what the intention is. This statin decision aid is useful when the decision to start statin is already being considered with the patient and the patient needs to 'see' what how their risk might change with no, standard or high dose statin.

The authors note that "Using heart age to recommend medication is likely to undermine the absolute risk approach for medication decisions". While this is a valid point, they need to clarify that the current guidelines do not recommend using heart age to guide prescription.

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