Long-term outcome in patients admitted with a heart attack and detected with increased blood sugar levels during admission

An Oral Glucose Tolerance Test (OGTT) is one of the diagnostic tests to determine the presence of pre - diabetes or manifest diabetes. An OGTT involves drinking a 75 gram sugar solution after 8 hours of fasting. A blood sample is then drawn just before drinking the solution and measured again after 2 hours in order to determine the changes in blood sugar levels.

Another method of determining diabetes - which is frequently used method in general practices and hospitals - is a measurement of the average long-term blood sugar levels over a period of 3 months (HbA1c) However, this method is only used to determine diabetes but not pre-diabetes.

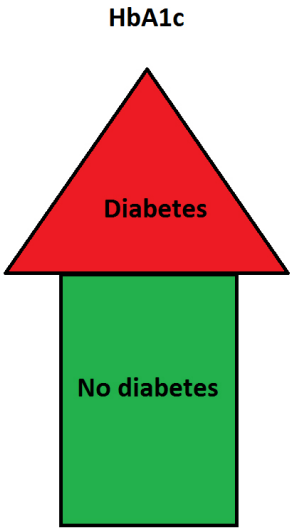

Fig. 1.

Previous studies have detected a higher mortality in patients admitted with a heart attack and stages of pre-diabetes or manifest diabetes compared to patients admitted with a heart attack and normal blood sugar levels. However, no studies have investigated the predictive value of using both an OGTT and HbA1c in patients admitted with a heart attack during long-term follow-up in terms of mortality.

This study was a prospective study enrolling patients admitted with a heart attack between 2002 until 2008 and follow-up until 2012. Only patients without a diagnosis of diabetes underwent an OGTT. We included 548 patients with a heart attack, of whom 469 underwent an OGTT and they

were categorized according to the OGTT and HbA1c.

During 9.8 years of follow-up, 179 (33%) patients died. In patients having “diabetes” determined by HbA1c, a considerably increased mortality was observed. However, when taking into account patients with already known diabetes, no considerable mortality was then detected.

An OGTT did not show a considerably increased mortality, if used separately.

A combined estimate showed a considerably increased mortality in patients categorized as “new diabetes” determined by OGTT but also “no diabetes” determined by HbA1c, compared to the patients with “no diabetes” by either method.

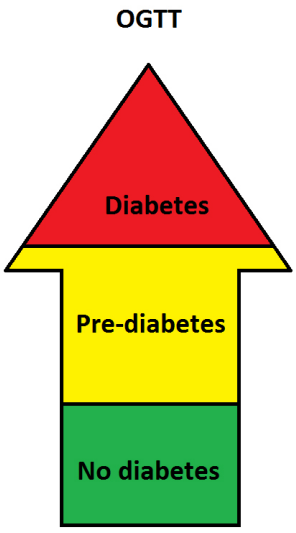

Fig. 2.

Approximately 50% of the patients with “new diabetes” determined by OGTT were only detected due to increased 2-hour values and not due to fasting sugar values.

There are some discrepancies by using an OGTT and HbA1c. OGTT and HbA1c both reflect abnormal blood sugar levels, but the methods reveal the immediate changes in blood sugar levels and an averaged value of blood sugar levels over 3 months, so they are not directly comparable.

HbA1c is common method used for detecting manifest diabetes, but it is not accepted for diagnosing pre-diabetes by World Health Organization, so in our opinion, additional predictive value can be gained by performing an OGTT additionally in patients with “no diabetes” by HbA1c.

Patients categorized as “new diabetes” determined by an OGTT but also having “no diabetes”

determined by HbA1c, shared a comparable mortality as patients with “diabetes” by HbA1c.

An OGTT is recommended in patients admitted with a heart attack but also having “no diabetes” determined by HbA1c.

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Publication

Newly detected abnormal glucose regulation and long-term prognosis after acute myocardial infarction: Comparison of an oral glucose tolerance test and glycosylated haemoglobin A1c.
Pararajasingam G, Høfsten DE, Løgstrup BB, Egstrup M, Henriksen FL, Hangaard J, Egstrup K
Int J Cardiol. 2016 Jul 1