

Diabetes prevention program aha!: First successes are visible!

Petersen C.^{1,2}, Püschner F.³, Binder S.³, Amelung V.E.³, Göhl M.⁴, Schliffke M.⁵, Schütt M.⁶, Mordhorst K.⁷, Letsch B.⁸, Pukowski T.⁹

¹Diabetes-Schwerpunktpraxis Internistische Gemeinschaftspraxis SL, Schleswig, Germany, ²Docevent, Schleswig, Germany, ³Institut für angewandte Versorgungsforschung (inav GmbH), Berlin, Germany, ⁴MSD Sharp & Dohme GmbH, Haar, Germany, ⁵Kassenärztliche Vereinigung Schleswig-Holstein, Bad Segeberg, Germany, ⁶Diabetologische Schwerpunktpraxis Diabetes plus, Lübeck, Germany, ⁷BARMER, Kiel, Germany, ⁸AOK NORDWEST, Kiel, Germany, ⁹DAK-Gesundheit, Kiel, Germany

BACKGROUND

With a prevalence of approximately 7-8% type 2 diabetes (T2D) is one of the most common diseases in Germany. It is assumed that there is an equally high number of unreported T2D cases [1,2]. Long-term comorbidities can lead to serious sequelae [3]. The main cause for the manifestation of T2D is an unfavourable lifestyle. Thus, primary prevention can be an appropriate tool to prevent T2D [1,4]. Both, prevention and early detection of T2D are defined as key health targets in Germany [5].

As a follow-up project of the successfully implemented and evaluated aha!1.0, the aha!-program will be rolled out in the community setting in Schleswig-Holstein. In July 2014 the Association of Statutory Health Insurance Physicians Schleswig-Holstein (KVSH) and Health Insurance Funds (KK) agreed on a contract to support the aha!-program which focuses on prevention and early detection of T2D by applying the FINDRISK test and the aha!-program.

Aim of the evaluation

The aim of the aha!-program is the early identification of persons at risk of T2D and prevent the onset or the manifestation of the disease by offering medical support and the lifestyle intervention. It is expected that preventing the onset of T2D will not only increase the participants' quality of life but will also result in health care cost reduction.

INTERVENTION

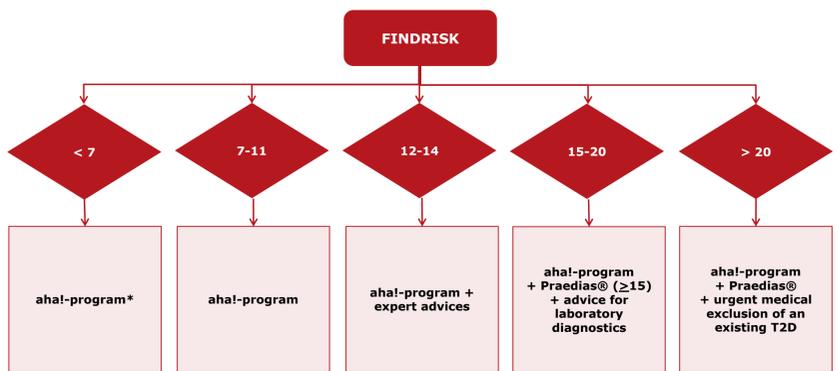
FINDRISK Test

By applying a screening test (FINDRISK test) persons at risk of developing T2D over the next ten years are identified.

aha!-program

Depending on the individual risk score derived from FINDRISK different prevention programs are offered (see figure 1). The 12 week aha!-program consists of: a chip-list, a nutrition and physical activity journal, a thera-band, a measuring-tape and a pedometer.

Figure 1 – Interventions depending on a participant's risk score

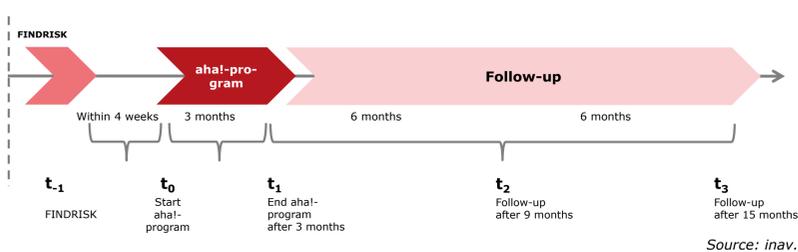


EVALUATION DESIGN

Design

The evaluation is designed as a prospective, multicentre one-group evaluation, without involvement of pharmaceutical treatment. The evaluation covers a period of two years. The data collection process is shown in figure 2.

Figure 2 – Evaluation flow of persons at risk of T2D



Population

To be included in the target group, the following characteristics have to be met: persons have to be at least 18 years old, show abdominal obesity, and/or a family anamnesis, and/or a sedentary lifestyle. Physicians in Schleswig-Holstein will recruit persons eligible for the FINDRISK test.

Data analysis

Since July 2014, altogether 943 persons were registered in this study. Out of all registered persons, 937 persons have complete and evaluable FINDRISK tests. The impact on weight loss, body mass index (BMI), waist size reduction and health targets will be assessed exploratively by descriptive analyses. So far, 194 persons have completed the 15-month program; 189 showed complete and evaluable outcome parameters for every step of the prevention program. These 189 persons were included in a pre-post analysis in which relevant outcome parameters at the end of the evaluation were compared to those at beginning of the program (3 months intervention, 12 months follow-up) by using a paired t-test.

INTERIM RESULTS

FINDRISK test

So far, FINDRISK scores of 937 patients can be analysed, including 662 women (71%) and 275 men (29%) with an average age of 49 years (SD 15), respectively 51 years (SD 16). On average, women were 1,66m tall (SD 7) with a weight of 99kg (SD 20) and men were 1,80m tall (SD 7) with a weight of 114kg (SD 25). Figures 3 and 4 show the frequency distributions of the FINDRISK scores and the BMIs for both men and women. The average FINDRISK score of both men and women was about 15 (SD 4). On average, women had a BMI of 36 (SD 7) and men had a BMI of 35 (SD 7). Approximately 18% of both men and women were overweight; 80% were obese.

Figure 3 – Distribution of FINDRISK scores at initial assessment, in percent %, N=937 participants

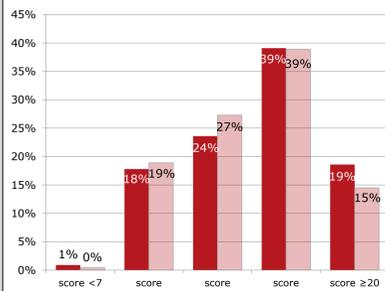
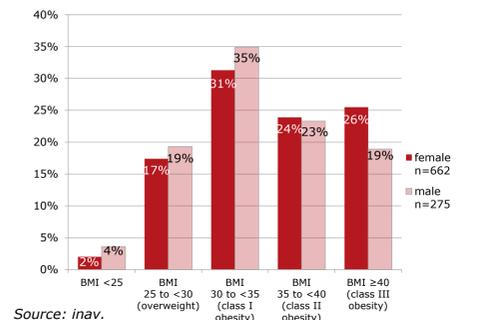


Figure 4 – Distribution of BMI at initial assessment, in percent %, N=937 participants



Finalization of the aha!-program

Of the 937 participants with complete and evaluable FINDRISK tests 7 persons had to be excluded from participating in the program because their FINDRISK scores with <7 and BMIs with <30 were too low.

Of the 189 persons at risk of T2D who already finished the aha!-program and have complete and evaluable results, 129 were female (68%) and 60 male (32%) with an average age of 54 years (SD 13), respectively 57 years (SD 15). On average, women were 1,66m tall (SD 6) with a weight of 99kg (SD 18) and men were 1,81m tall (SD 8) with a weight of 110kg (SD 28). The average FINDRISK score for both men and women was about 16 (SD 4). On average, women had a BMI of 36 (SD 6) and men of 34 (SD 8).

Together, men and women achieved an average weight reduction of 4,8kg*** as well as an average reduction in waist size of 6,0cm*** (see figure 5 and 6). 44% of the aha! participants lost 5-7% of their weight compared to the beginning of the program, which was one of the program's health targets agreed upon. Furthermore, 63% achieved a reduction in waist size and 79% are still physically active for at least 30 minutes per day.

Figure 5 – Significant weight reduction after 15 months, in kg, N=189 participants

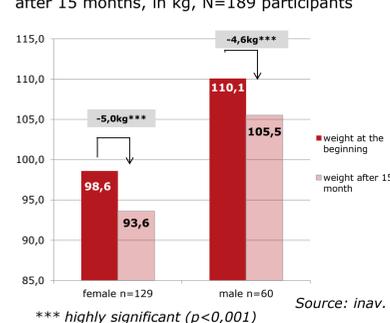
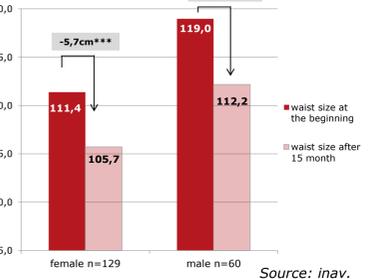


Figure 6 – Significant reduction in waist size after 15 months, in cm, N=189 participants



CONCLUSION

The aha!-program is effective in identifying people at risk of T2D

The first results indicate that aha! is an effective intervention for reducing T2D risk factors for persons at a high risk for T2D. Gender specific analyses will follow. The Dimini-project is a further developed follow-up program of aha! with a new scaling.

Literature

- [1] Icks, A., Rathmann, W., Rosenbauer, J. and Gian, G. (2005), Diabetes mellitus, *Gesundheitsberichterstattung des Bundes*, (24), Berlin: Robert Koch-Institut (Ed.).
- [2] International Diabetes Federation (2009), *IDF Diabetes Atlas*, 4th ed., Brussels: International Diabetes Federation (Ed.).
- [3] Heidemann, C., Du, Y. and Scheidt-Nave, C. (2011), Diabetes mellitus in Deutschland, *GBE Kompakt*, 3(2), Berlin: Robert Koch-Institut (Ed.).
- [4] Schwarz, P.E.H., Landgraf, R. and Hoffmann, R. (2013), Prävention des Typ-2-Diabetes, *Deutscher Gesundheitsbericht Diabetes 2013*, Berlin: diabetesDE – Deutsche Diabetes-Hilfe (Ed.), pp. 17-24.
- [5] gesundheitsziele.de (2003), Diabetes mellitus Typ 2: Erkrankungsrisiko senken, Erkrankte früh erkennen und behandeln, *Forum zur Entwicklung und Umsetzung von Gesundheitszielen in Deutschland*, Bericht, Auszug der Ergebnisse von AG 4, Köln: GVG (Ed.).

Contact: Dr. Carsten Petersen; c.petersen@internisten-schleswig.de