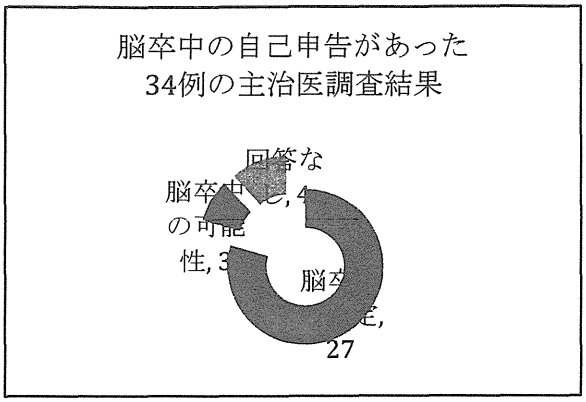
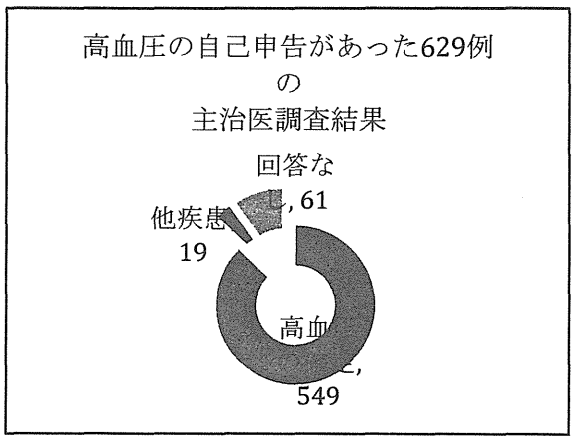


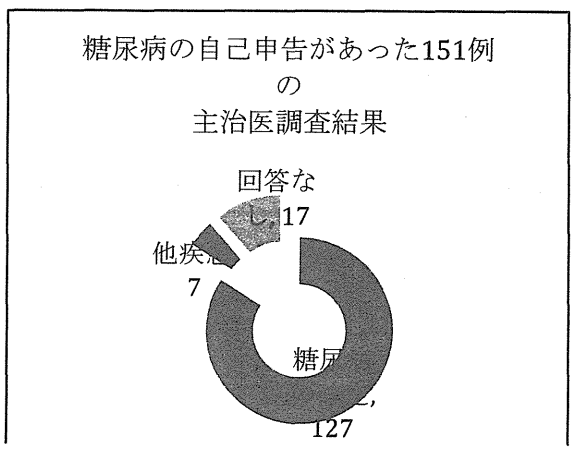
【高血圧・糖尿病】

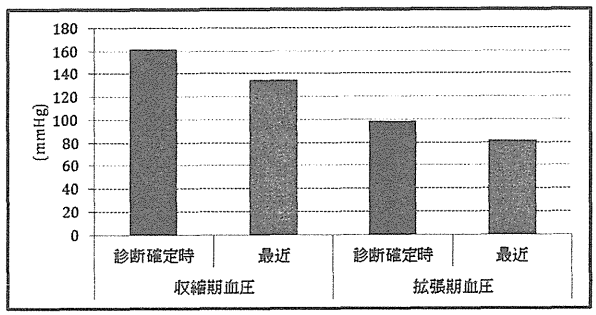
同様に高血圧と糖尿病の治療歴を自己申告し、かつ病歴に関する詳細な調査に協力の意思を表明、病医院名など調査に必要な情報が揃っていた延べ780名（高血圧：629名、糖尿病：151 名）の者について、主治医に対する調査を実施した。その結果、下図に示した通り、549 例の高血圧（87%）、127 例の糖尿病（84%）の診断を確定した。なお、確定した症例には二次性高血圧6例、1 型糖尿病 4 例をそれぞれ含んでいるが、本集計ではそれらを区別していない。



【高血圧に関する調査結果】

診察室測定の最近の血圧の平均値は135/81 mmHg で、診断確定時の平均値161/99 mmHg より有意に低下していた。





高血圧治療薬は、単剤が約6割、2剤が3割、3剤以上が約8%であった。薬物療法なしも3.6%存在していた（表1）。

表1 高血圧治療薬の数

治療薬の数	度数	%
0（投薬なし）	20	3.6
1	327	59.6
2	160	29.1
3	33	6.0
4	8	1.5
5	1	0.2
合計	549	100.0

降圧薬の種類は、カルシウム拮抗薬とアンギオテンシンII受容体拮抗薬（ARB）がそれぞれ過半数（両剤投与178例、うち合剤46例、を含む）を占めていた（表2）。

表2 高血圧治療薬の内訳（重複あり）

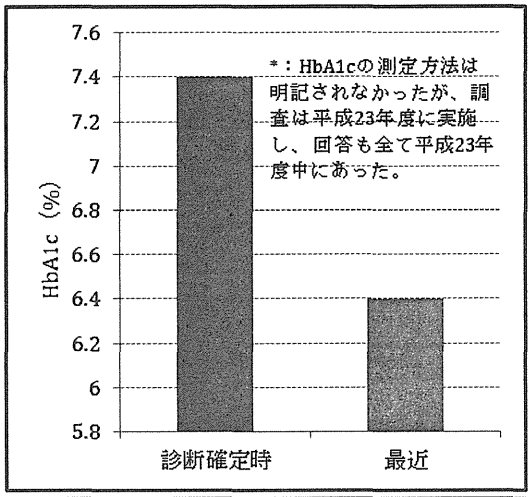
	人数	%
ｶﾙｼｳﾑ拮抗薬（CCB）	285	53.9
ARB	277	52.4
β-blocker	62	11.7
合剤（ARB＋CCB）	46	8.7
合剤（ARB＋利尿剤）	33	6.2
ACE 阻害薬	24	4.5
ｻｲｱｻﾞｲﾄﾞ系利尿薬	24	4.5
α-blocker	14	2.6
抗ｱﾙﾄﾞｽﾃﾛﾝ系利尿薬	11	2.1
ループ利尿薬	5	0.9
レニン阻害薬	2	0.4
合計	783	

（%は投薬ありの529人に対する割合）

【糖尿病】

次頁の図に示したように、診断確定時のHbA1c の平均値は 7.4%、最近の平均値は6.4%であった。また、診断確定時と最近の空腹時血糖値はそれぞれ 148 mg/dl、126 mg/dl であった。なお、最近の HbA1c 値は全例、診断確定時の HbA1c 値は約 100 例

(77%)、空腹時血糖値は診断確定時、最近とも約半数の症例について回答があった。



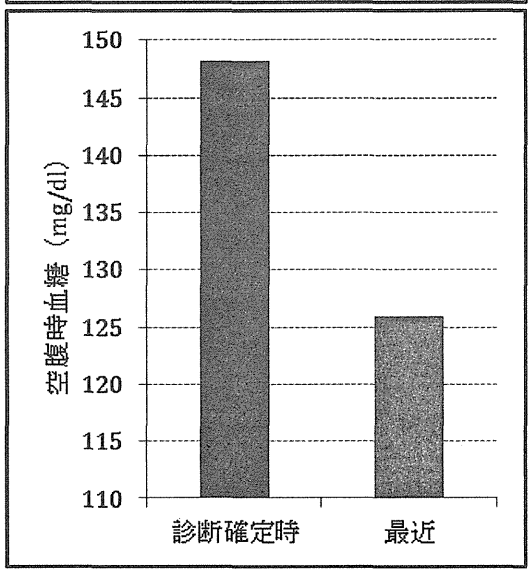


表3に示したように、糖尿病治療で投薬を受けていた人数は94人（74%）で、投薬内容の内訳は単剤が約半数、2剤以上の多剤が約半数という結果であった。

表3 糖尿病治療薬の数

	度数	%
0（投薬なし）	32	25.2
1	49	38.6
2	30	23.6
3	13	10.2
4	2	1.6
5	1	0.8
合計	127	100.0

治療薬はSU剤が最も多く、次いでDPP-4阻害薬、α-GI、ビグアナイド系の順であった（表4）。

表4 糖尿病治療薬の内訳（重複あり）

	人数	%
ｽﾙﾎﾆﾙｳﾚｱ系（SU剤）	40	42.1
DPP-4阻害薬	34	35.8
αｸﾞﾙｺｼﾀﾞｰｾﾞ阻害薬	30	31.6
ビグアナイド系	26	27.4
チアゾリジン誘導体	17	17.9
インスリン注射製剤	7	7.4
グリニド系	5	5.3
その他、または不明	2	2.1
合計	161	

（%は投薬ありの94人に対する割合）

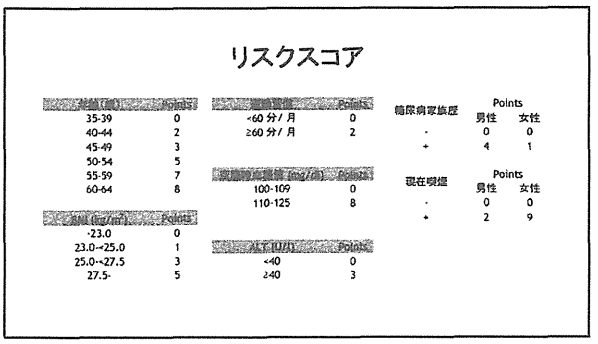
【健診および生活習慣要因による糖尿病発症リスクスコア開発】

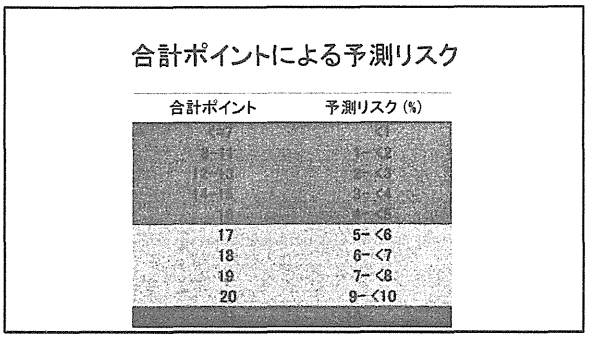
日本人中年男女勤労者のコホートの約8年間の追跡中に同定された2型糖尿病（T2DM）発症を有意に予測する生活習慣・健診成績の予測因子から、8年間の糖尿病発症確率を予測するリスクスコアを作成した。

方法：平成14年に35～66歳であった者のうち、ベースライン時に空腹時血糖値が126 mg/dl未満かつ糖尿病歴の申告がなく、解析に必要な変数が揃った3,314名を対象とした。T2DM発症は経年的な健診成績が初めて126 mg/dl以上となった時、または平成16、19、23年のアンケート調査での糖尿病治療の自己申告とそれに引き続く診療録調査による確認によって把握した。検討に含めた変数は、性別、年齢、body mass index（BMI<23、23-24.9、25-27.4、≥27.5 kg/m^2）、喫煙（現在喫煙しない、現喫煙）、身体活動（<60分/月、≥60分/月）、飲酒習慣（飲まない、<エタノール換算23g/日、23-45.9g/日、≥46g/日）、糖尿病の家族歴、ALT（<40 U/l、≥40 U/l）、ベースラインの空腹時血糖値（<110 mg/dlと110-125 mg/dl）で、全ての変数について性別との交互作用の有無を確認した。統計解析にはCox比例ハザードモデルを用い、変数減少法（選択基準p<0.1）により、最終モデルを決定した。次いで、選択された予測因子を使って8年間糖尿病発症予測リスクスコアを作成し、判別能（Area under the receiver operating curve: AUC）および適合度（Gronnesby-Borgan：G-B検定）、さらにbootstrap法によりAUCの95%信頼区間を求めた。

結果：8.9年（中央値）の追跡期間中に218名がT2DMを発症した（粗発症率：8.7/1000人年）。選択された予測因子は性別、年齢、

BMI、現喫煙、身体活動あり、家族歴、ALT高値、血糖高値、また性別と家族歴および現喫煙の交互作用であった。これらの変数からポイントシステムによるリスクスコアを作成した結果、AUCは0.73(Bootstrap 95%信頼区間:0.70-0.76)であり、calibrationも良好であった（G-B検定 P=0.87)。





D. 考察

愛知職域コホート研究は職域を対象としており、健診成績の経年的な把握や在職中の追跡は比較的容易であるが、退職後の疾患発症の追跡には困難も多い。また、都市部に居住しており、発症した疾患を治療する医療機関も多数存在し、採録は主治医への依頼方式を採っている。主治医調査に同意しない対象者もいるが、同意した場合の主治医の回答率は8割以上と高い。追跡率の維持向上、調査への協力率の維持向上のために、対象者へのフィードバックを継続して実施していくことが重要であると考えられた。また、今回、健診成績の経年的な把握が可能という特徴を活用し、糖尿病発症リスクスコアを作成した。

E. 結論

都市部勤労者を対象とした愛知職域コホート研究（n=6,638）は11年間の追跡を終了し、健診成績の経年的な把握を含む追跡調査を継続している。対象者へのフィードバックも継続しながら、追跡率を維持していきたい。

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F. 健康危険情報

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G. 研究発表

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H.　知的財産権の出願・登録状況

特記すべきものなし

両親の糖尿病歴と本人の糖尿病発症リスクの関連について

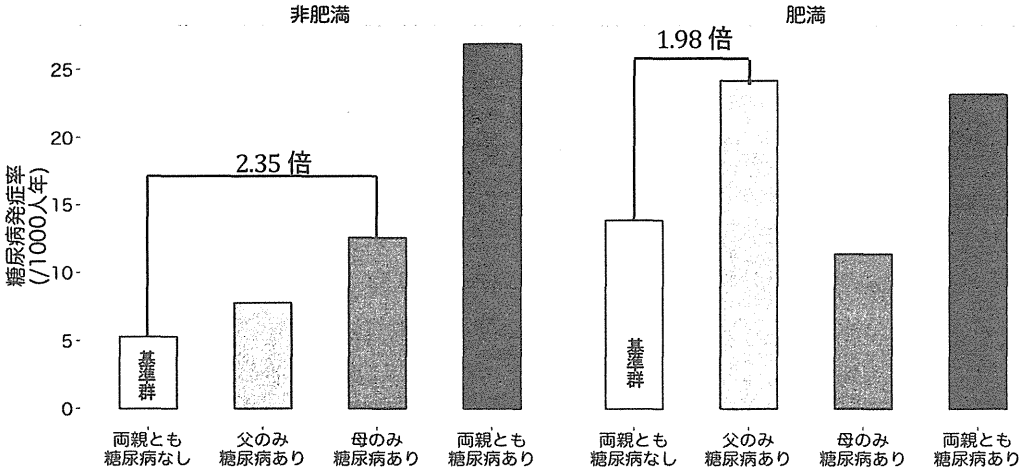
研究代表者：八谷　寛　　藤田保健衛生学医学部公衆衛生学　教授
研究協力者：王　超辰　名古屋大学大学院医学系研究科　国際保健医療学・公衆衛生学　大学院生

目的：糖尿病家族歴（両親）の有無とその後の糖尿病発症の関係について、対象者の研究開始時の肥満度で分けて調べる。

方法：愛知職域コホート研究の平成１４年のベースライン調査参加にインフォームド・コンセントを得ており、かつ糖尿病の家族歴情報がある5,471名の対象者のうち、解析に必要な変数に欠損値がある者（n=374）、糖尿病既往歴のある者、あるいはベースライン年の健診空腹時血糖値が126mg/dlを超えた者（n=641）を除外した4,446名を解析対象者とした。新規の糖尿病発症は自記式病歴調査で把握した治療開始時と経年的健診成績から把握した空腹時血糖が126mg/dl以上となった時とした。解析は男女を合わせて実施し、「両親とも糖尿病なし」を基準群とし、「父のみ糖尿病あり」、「母のみ糖尿病あり」、「両親とも糖尿病あり」群それぞれの多変量調整ハザード比（HR）をCox比例ハザードモデルにより算出した。続いて、対象者の研究開始時の体重が肥満（BMI≥25kg/m^2）かどうかで層別化して解析した。共変量として年齢、性別、喫煙、飲酒、運動、総エネルギー摂取、出生体重、BMI、メタボリックシンドロームの構成要素の数を調整した。。

結果： 9年間の追跡期間中に277名の方に糖尿病が発症した。「両親とも糖尿病なし」の基準群に比べ、「父のみ糖尿病あり」、「母のみ糖尿病あり」、「両親とも糖尿病あり」と回答した群の多変量調整HR（95%信頼区間）は1.72（1.19-2.47）1.66（1.07-2.58）3.46（1.42-8.43）と、どの群においても糖尿病発症リスクの有意な上昇が認められた。次に、肥満の有無で層化した解析で、非肥満群においては、「母のみ糖尿病あり」群のHRが2.35（1.41-3.91）、「両親とも糖尿病あり」群のHRが　6.00（1.89-19.08）と有意に上昇した。肥満群においては、「父のみ糖尿病あり」群のみで、HRが1.98（1.19-3.28）と有意に上昇していた。

結論：非肥満者において母親の既往歴が本人の糖尿病発症リスクに強く関連することが示唆された。肥満者では、父親の糖尿病歴が本人の糖尿病発症リスクとの関連が認められた。、これらの詳細なメカニズムはまだ解明されていない。


非肥満
肥満
糖尿病発症率
(/1000人年)
25
20
15
10
5
0
2.35 倍
1.98 倍
基準群
基準群
両親とも
糖尿病なし
父のみ
糖尿病あり
母のみ
糖尿病あり
両親とも
糖尿病あり
両親とも
糖尿病なし
父のみ
糖尿病あり
母のみ
糖尿病あり
両親とも
糖尿病あり

Ⅳ．研究成果の刊行に関する一覧表

研究成果の刊行に関する一覧表

雑誌

	発表者氏名	論文タイトル名	発表誌名	巻号	ページ	出版年
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Ⅴ．研究成果の刊行物・別刷

Original Article

Calibration between the Estimated Probability of the Risk Assessment Chart of Japan Atherosclerosis Society and Actual Mortality Using External Population: Evidence for Cardiovascular Prevention from Observational Cohorts in Japan (EPOCH-JAPAN)

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Aim: In Japan Atherosclerosis Society guidelines for the prevention of atherosclerotic cardiovascular diseases 2012 (JAS2012), NIPPON DATA80 risk assessment chart (ND80RAC) was adopted to estimate the 10-year probability of coronary artery disease (CAD) mortality. However, there was no comparison between the estimated mortality calculated by ND80RAC and actual mortality in external populations. Accordingly, we used the large pooled database of cohorts in Japan, EPOCH-JAPAN, as an external population.

Methods: The participants of EPOCH-JAPAN without a history of cardiovascular disease (15,091 men and 18,589 women aged 40−74 years) were analyzed based on sex. The probability of a 10-year risk of CAD/stroke mortality was estimated by ND80RAC. The participants were divided into both decile of their estimated mortality and three categories according to JAS2012. The calibration between the mean estimated mortality and the actual mortality was performed by the Hosmer and Lemeshow (H-L) test.

Results: In both sexes, the estimated CAD mortality was higher than the actual mortality, particularly in higher deciles of estimated mortality, and the estimated stroke mortality was almost concordant with the actual mortality in low/moderate deciles of estimated mortality. As for the categories according to JAS2012, the estimated CAD mortality was higher than the actual mortality in both sexes; actual mortality in Category III was lower than that in Category II in women. However, it increased in the ascending order of category when we excluded the presence of diabetes from Category III.

Conclusions: The estimated CAD mortality by ND80RAC tended to be higher than the actual mortality in the population in which the baseline survey was more recently performed.

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Key words: External calibration, Cohort studies, Pooled analysis, Risk assessment Chart, Stroke, Coronary artery disease

Introduction

Cardiovascular disease (CVD) is one of the leading causes of mortality in the world as well as in Japan[1, 2]. To predict individuals at high risk for CVD, several risk prediction tools have been developed[3, 4]. Among them, the Framingham risk score (FRS) was widely accepted in Western countries because of its well-established validity[5-11]. The 2013 American College of Cardiology/American Heart Association recently updated cholesterol guidelines, which recommend the use of Pooled Cohort Equations to estimate the 10-year absolute risk for atherosclerotic cardiovascular disease (ASCVD)[12]. However, because FRS and ASCVD had been established among Caucasians, the risk for coronary artery disease (CAD) may be overestimated in Asians, especially Japanese population, which have extremely lower CAD mortality than the Western population[13].

The Japan Atherosclerosis Society (JAS) proposed comprehensive lipid and risk management guidelines for CAD in 2012. In the guideline, the 10-year absolute risk chart of CAD mortality was established using the National Integrated Project for Prospective Observation of Non-communicable Disease and Its Trends in the Aged 1980 (NIPPON DATA80) Risk Assessment Chart (ND80RAC)[14, 15]. In addition, JAS defined three categories for the prevention of CAD according to the presence of several diseases such as diabetes mellitus (DM). In the previous study, subclinical atherosclerosis of the carotid arteries has been reported to be concordant with the three categories defined by the JAS guidelines 2012[16]. However, there was no calibration study between the estimated mortality calculated by ND80RAC and actual mortality in the external populations and time-period.

The purpose of this study was to investigate the external calibration of ND80RAC using the large pooled database of the cohorts in Japan, the Evidence for Cardiovascular Prevention from Observational Cohorts in Japan (EPOCH-JAPAN).

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Methods

Study Design and Participants

The present study was a part of pooled project called EPOCH-JAPAN, one of the largest cohort dataset, which incorporates 14 both nationwide and regional cohort studies in Japan for meta-analyses. The details of the rationale, study design, and methods of EPOCH-JAPAN have been described elsewhere[17-24]. In brief, the criteria for a cohort recruitment of EPOCH-JAPAN were as follows: (i) collected health examination measures; (ii) had almost 10 years of follow-up; (iii) included >1,000 participants. Quality control of the collected cohort data was performed at the EPOCH-JAPAN study coordinating center. Permission to submit data from each cohort to the EPOCH-JAPAN study coordinating center was obtained from the relevant institutional review boards for ethical issues.

Of the 14 cohorts, two cohorts were excluded from the present analysis because of the absence of cause of death information and 12 cohorts were included (Tanno-Sobetsu, Ohsaki, Ohasama, Oyabe, YKK workers, Suita, RERF cohort, Hisayama, JACC, NIPPON DATA80, NIPPON DATA90 and Osaka). From 101,977 total participants, the participants of NIPPON DATA80 (n=9,442), the participants who had a history of cardiovascular disease at baseline (n=7,029) and who were <40 years or >75 years (n=13,747) were excluded. In addition, those with the missing values or outliers on systolic blood pressure, serum total cholesterol, blood glucose, and smoking status (n=38,079) were excluded. In this process, the dataset of 2 cohorts (Oyabe and JACC) were completely excluded due to the missing values of blood glucose. Finally, the remaining participants of 33,680 (15,091 men and 18,589 women) were included in the present study.

Risk Factors

Information of each participant's medical history and drinking/smoking status was obtained throughout questionnaires. Blood pressure was measured in the sitting position with a standard mercury sphygmomanometer, except for the Ohasama study in which the validated automatic monitor was used. The participants rested before measurement except in the Ohsaki study. Two (Ohasama and Suita studies) or three (Hisayama study) consecutive values, or otherwise one reading at the examination center was used in the analysis[17, 18, 24-26]. Non-fasting serum total cholesterol and blood glucose level were determined by automated enzymatic methods on venous blood samples.

Endpoints

The details of determining the endpoints in EPOCH-JAPAN have been reported elsewhere[19]. Shortly, a primary underlying cause of death was sought in great detail from the available sources such as death certificates, the National Vital Statistics, autopsy reports as well as medical records in each cohort study and coded according to the ninth revision of the International Classification of Disease (ICD-9) for National Vital Statistics based on the criteria proposed by the World Health Organization[27]. In the present study, the endpoints were mortality from CAD (ICD-9 codes 410-414, ICD-10 codes I-20-I25) and stroke (ICD-9 codes 430-438, ICD-10 codes I60-I69) during the 10 year follow-up.

NIPPON DATA80 Risk Assessment Charts

Risk charts for the probability over a 10-year period of mortality from CAD/stroke were constructed on the basis of a nationwide cohort study called NIPPON DATA80 and cited in the JAS guidelines 2012[14, 15]. The participants of NIPPON DATA80 were those in the National Survey on Circulatory Disorders 1980 and all household members aged ≥30 years in 300 randomly selected census tracts across Japan who agreed to cooperate in the survey.

Statistical Methods

Sex-specific analyses were performed. From the risk assessment charts in JAS guidelines 2012, the equation $1-S(10:x)=1-[S_0(10:\bar{x})]^{\exp(\beta(\bar{x}-x))}$ estimated the probability of the 10-year risk for CAD/stroke mortality, where x: risk factors at baseline in EPOCH-JAPAN, $\bar{x}$: mean values of risk factors at baseline in NIPPON DATA80, β: regression coefficients for the risk factors of NIPPON DATA80, and $S_0(10:\bar{x})$: the survival probability of 10-year risk with risk factors $\bar{x}$. The risk factors in this model were as follows: age, systolic blood pressure (SBP), total cholesterol, smoke status (current or not), and casual glucose level (≥200 mg/dL or <200 mg/dL)[15]. To calibrate the mean estimated CAD/stroke mortality in ND80RAC and the actual cumulative mortality in EPOCH-JAPAN, the participants were divided into decile of their estimated probability, and the mean estimated probability was calculated in each decile. Furthermore, the actual cumulative mortality of CAD/stroke in each decile was calculated as the number of deceased participants divided by the number of all participants in the decile. Hosmer and Lemeshow test was conducted to perform the difference between the estimate CAD/stroke mortality and the actual cumulative mortality.

The participants were also categorized according to the JAS guidelines 2012 with four exceptions: (i) none of the study participants had a history of non-cardiogenic cerebral infarction because a history of any type of stroke was excluded from the cohort; (ii) a family history of premature CAD was not assessed because we have not been collected; (iii) there was no information about HDL (high density lipoprotein) cholesterol; and (iv) there was also no information about chronic kidney disease (CKD). Finally, the participants were defined in three categories: Category I (low risk, probability of CAD mortality <0.5%), Category II (intermediate risk, probability of CAD mortality ≥0.5% and <2.0%), and Category III (high risk, probability of CAD mortality ≥2.0% or having DM)[14]. In addition, the participants were classified into three risk categories according to the probability of CAD mortality mentioned above, without considering the presence of DM in Category III.

The analyses were performed using the SAS 9.3 (SAS Institute Inc., Cary, NC, USA).

Results

The mean age of the participants was 56 years (standard deviation: 10 years) and the mean follow-up period was 9.4 years. During the 10-year follow-up, we observed 120 deaths from CAD and 186 deaths from stroke (cerebral infarction: 65, hemorrhagic stroke: 42 and subarachnoidal hemorrhage: 39).

Table 1 shows the baseline characteristics of the participants defined by the three categories of JAS guidelines 2012. Category III accounted for a majority of the CAD/stroke mortality.

Fig. 1 shows the mean estimated CAD mortality and its actual cumulative mortality according to the decile of estimated CAD mortality. In men, the actual mortality increased as the mean estimated mortality increased. In lower decile groups, the mean estimated mortality fairly predicted the actual mortality. Meanwhile, in higher decile groups, the mean estimated mortality was predicted to be higher than the actual mortality, especially in the 8th, 9th, and 10th decile. In women, the results were almost similar with those in men, while the number of CAD mortality in women was fewer than that in men. In the 10th decile, the mean estimated mortality was particularly higher than the actual mortality. Homer and Lemeshow test showed the significant difference in both men ($p<0.001$) and women ($p<0.001$).

Fig. 2 shows the mean estimated stroke mortality and its actual cumulative mortality according to the decile of estimated stroke mortality. In men, the actual mortality increased as the estimated mortality

Table 1. Baseline Characteristics of EPOCH-JAPAN distinguished by Japan Atherosclerosis Society (JAS) classification

	Category for LDL-c management proposed by JAS Guidelines 2012[1)]					
	Men			Women		
	I	II	III	I	II	III
Age, years (SD)	46 (5)	58 (6)	57 (10)	51 (7)	67 (3)	58 (10)
Person year (SD)	9.8 (0.9)	9.5 (1.5)	9.3 (2.0)	9.8 (0.9)	9.6 (1.5)	9.4 (2.0)
Systolic blood pressure, mmHg (SD)	121 (15)	131 (18)	133 (19)	126 (19)	137 (20)	131 (20)
Total cholesterol, mg/dL (SD)	186 (30)	200 (34)	199 (36)	210 (37)	227 (38)	213 (37)
Blood glucose, mg/dL (SD)	96 (13)	101 (19)	106 (32)	95 (13)	102 (19)	103 (28)
% of those having glucose ≥ 200 mg/dL	0	0	2.2	0	0	1.7
Current Smoker (%)	56.6	55.4	53.0	8.3	11.5	6.7
Number of Stroke	0	8	81	4	8	85
Number of Ischemic Stroke	0	2	33	1	4	25
Number of Hemorrhagic Strokes	0	2	24	1	3	12
Number of Subarachnoid hemorrhage	0	3	13	0	1	22
Number of Coronary Artery Disease	1	10	69	1	8	31

1) Category I: < 0.5%, Category II: ≥ 0.5% < 2.0%, Category III: ≥ 2.0% or Diabetes Mellitus

increased. In low/moderate decile groups, the mean estimated mortality fairly predicted the actual mortality. Meanwhile, in the higher decile group, the mean estimated mortality was predicted to be higher than the actual mortality, particularly in the 9th and 10th decile. In women, the results were almost similar with those in men. In the 9th and 10th decile, the mean estimated mortality was particularly higher than the actual mortality. Homer and Lemeshow test showed the significant difference in both men ($p<0.001$) and women ($p<0.001$).

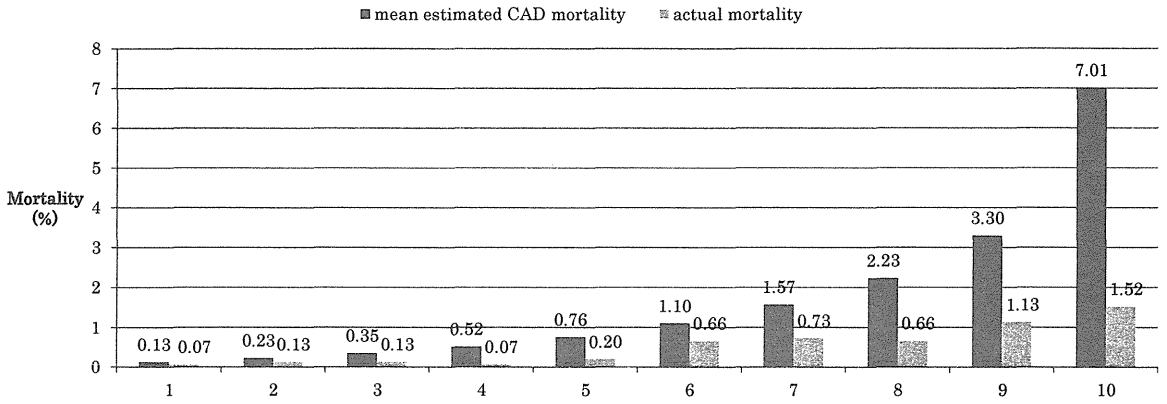
Supplemental Figures show the cohort-specific analysis between the mean estimated CAD/stroke mortality and its actual mortality by the quintile of estimated mortality. Based on their sample size and actual mortality, Suita cohort and Osaki cohort were selected as a representative of high and low age-adjusted CAD mortality rate (Suita: 474, Osaki: 273/100,000 population), respectively. In addition, NIPPON DATA90 was selected because it was performed under the similar protocol (sampling scheme of study participants) 10 years after NIPPON DATA80. In both men and women, the actual CAD/stroke mortality increased as the estimated morality increased. In higher quintile groups, i.e., 4th and 5th quintile, the mean estimated CAD/stroke mortality was higher than its actual mortality. These results were similar to the above-mentioned whole population analysis (**Fig. 1** and **2**).

Fig. 3 shows the mean estimated CAD mortality and its actual mortality according to the three categories of JAS guidelines 2012. The mean estimated mortality was higher than its actual mortality in all categories. In men, while the mean estimated mortality increased in the ascending order of category, its actual mortality in Category III did not increase significantly from that in Category II. The mean estimated mortality was higher than its actual mortality in Category III. In women, both the mean estimated mortality and actual mortality in Category III were lower than those in Category II. The Homer and Lemeshow test showed the significant difference in both men ($p<0.001$) and women ($p<0.001$).

Fig. 4 shows the mean estimated CAD mortality and its actual mortality according to the three categories of JAS guidelines 2012, without considering the presence of DM in risk classification. The mean estimated mortality was higher than its actual mortality in all categories. Compared to **Fig. 3**, the mean estimated mortality was higher than its actual mortality in Category III in **Fig. 4**. In men, both the mean estimated mortality and actual mortality increased in the ascending order of category, and the mean estimated mortality was higher than its actual mortality in Category III. In women, the results were almost the same as those in men. The Homer and Lemeshow test showed the significant difference in both men ($p<0.001$) and women ($p<0.001$).

Discussion

In the present study, we calibrated ND80RAC using one of the largest pooled cohort study, EPOCH-JAPAN. For CAD, in low mortality groups, the abso-

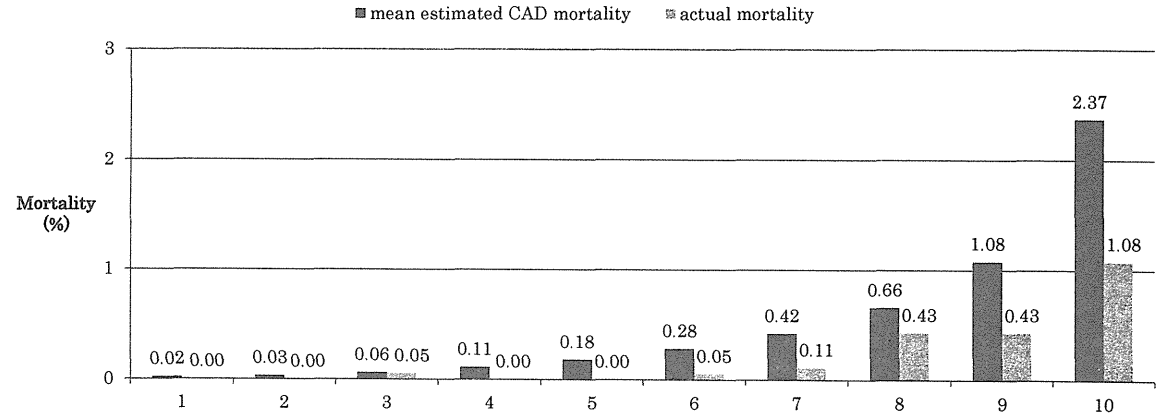


	1	2	3	4	5	6	7	8	9	10
Difference between two mortality [2]	0.06	0.10	0.22	0.45	0.56	0.44	0.84	1.57	2.17	5.49
Number of participants	1509	1509	1509	1509	1509	1509	1509	1508	1508	1512
Number of deaths	1	2	2	1	3	10	11	10	17	23

1) Estimated from NIPPON DATA80 risk chart

2) Calculated the difference between the mean estimated CAD mortality and the actual cumulative mortality in each decile

Fig. 1A. Decile of mean estimated CAD mortality of men in NIPPON DATA80 and actual mortality of men in EPOCH-JAPAN.[1] Hosmer–Lemeshow test (χ^2 statistic=134.18 d.f.=8, $P<0.001$)

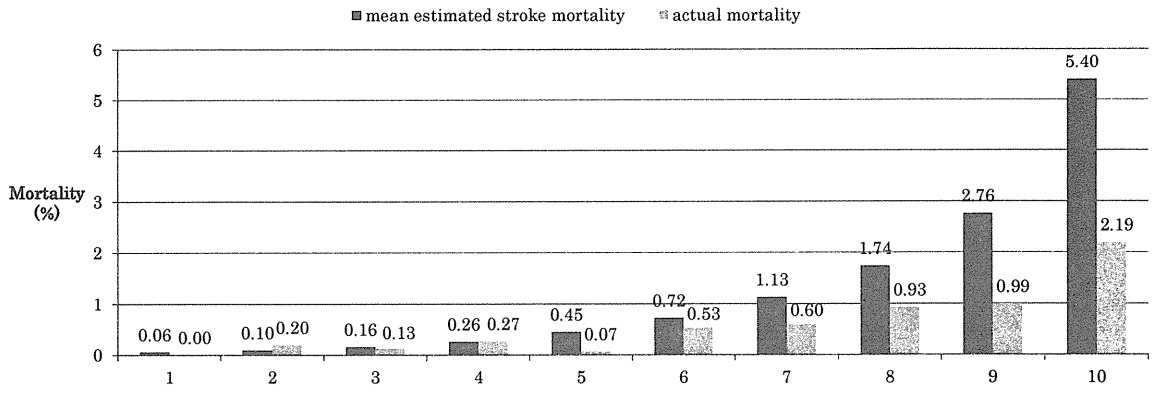


	1	2	3	4	5	6	7	8	9	10
Difference between two mortality [2]	0.02	0.03	0.01	0.11	0.18	0.23	0.31	0.23	0.65	1.29
Number of participants	1858	1859	1859	1859	1859	1859	1859	1859	1859	1859
Number of deaths	0	0	1	0	0	1	2	8	8	20

1) Estimated from NIPPON DATA80 risk chart

2) Calculated the difference between the mean estimated CAD mortality and the actual cumulative mortality in each decile

Fig. 1B. Decile of mean estimated CAD mortality of women in NIPPON DATA80 and actual mortality of women in EPOCH-JAPAN.[1] Hosmer–Lemeshow test (χ^2 statistic=36.38, d.f.=8, $P<0.001$)

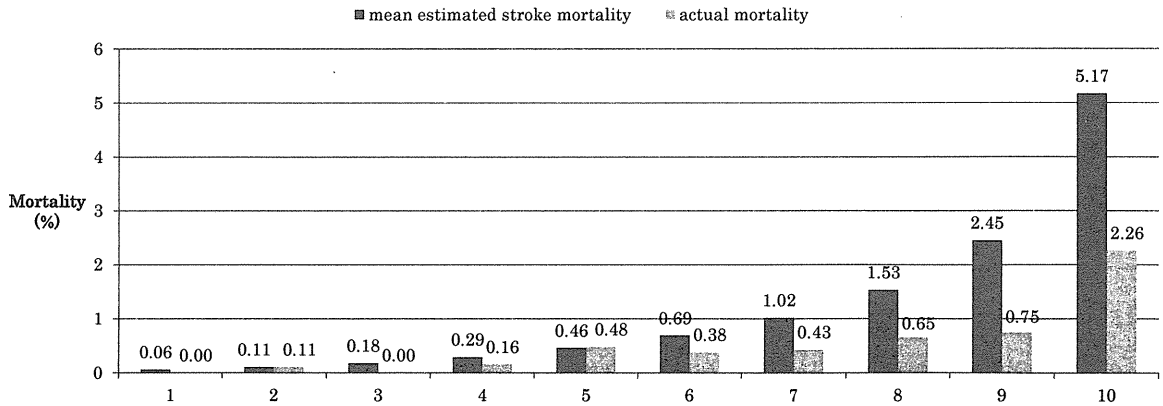


	1	2	3	4	5	6	7	8	9	10
Difference between two mortality [2]	0.06	0.10	0.03	0.01	0.38	0.19	0.53	0.81	1.77	3.21
Number of participants	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509
Number of deaths	0	3	2	4	1	8	9	14	15	33

1) Estimated from NIPPON DATA80 risk chart

2) Calculated the difference between the mean estimated stroke mortality and the actual cumulative mortality in each decile

Fig. 2A. Decile of mean estimated stroke mortality of men in NIPPON DATA80 and actual mortality of men in EPOCH-JAPAN.[1] Hosmer–Lemeshow test (χ^2 statistic=65.87, d.f.=8, $P<0.001$)



	1	2	3	4	5	6	7	8	9	10
Difference between two mortality [2]	0.06	0.00	0.18	0.13	0.02	0.31	0.59	0.88	1.70	2.91
Number of participants	1858	1858	1860	1859	1859	1859	1859	1859	1857	1861
Number of deaths	0	2	0	3	9	7	8	12	14	42

1) Estimated from NIPPON DATA80 risk chart

2) Calculated the difference between the mean estimated stroke mortality and the actual cumulative mortality in each decile

Fig. 2B. Decile of mean estimated stroke mortality of women in NIPPON DATA80 and actual mortality of women in EPOCH-JAPAN.[1] Hosmer–Lemeshow test (χ^2 statistic=78.84, d.f.=8, $P<0.001$)