

Pharmacologie médicale

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Définition d'un score de propension haute dimension pour comparer des patients initiant un anticoagulant oral direct ou un AVK pour une fibrillation auriculaire non-valvulaire d'après les données du SNIIRAM

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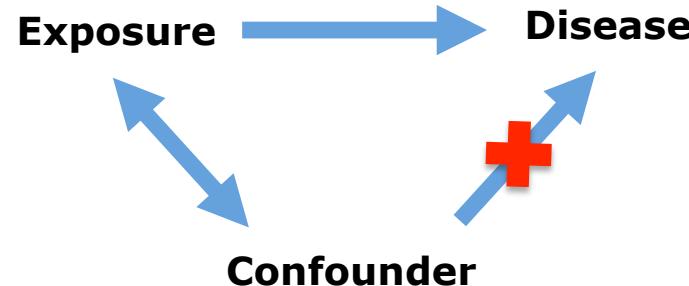
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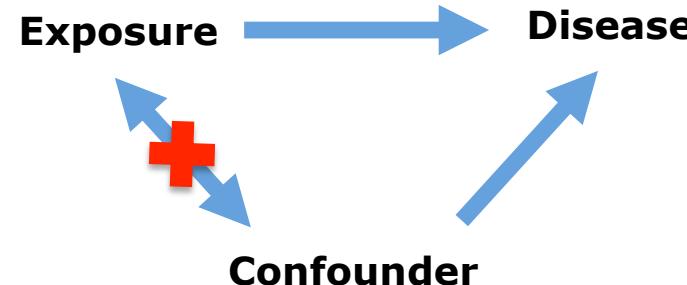
Introduction

- **Comparaison en épidémiologie** : risque de biais de confusion lié à l'exposition non aléatoire d'une intervention A ou B



Introduction

- **Comparaison en épidémiologie** : risque de biais de confusion lié à l'exposition non aléatoire d'une intervention A ou B
- **Score de propension** : résumé de plusieurs variables pour estimer l'effet d'une intervention en tenant compte de plusieurs variables pour prédire le fait de recevoir l'une ou l'autre des interventions



Introduction

- **Comparaison en épidémiologie** : risque de biais de confusion lié à l'exposition non aléatoire d'une intervention A ou B
- **Score de propension** : résumé de plusieurs variables pour estimer l'effet d'une intervention en tenant compte d'un très grand nombre de variables pour prédire le fait de recevoir l'une ou l'autre des interventions
- **Score de propension haute dimension (hdPS)** : idem sur un très grand nombre de variables (base de données médico- administratives), qui plus est, sont collectivement un proxy de facteurs de confusion non disponibles dans les données

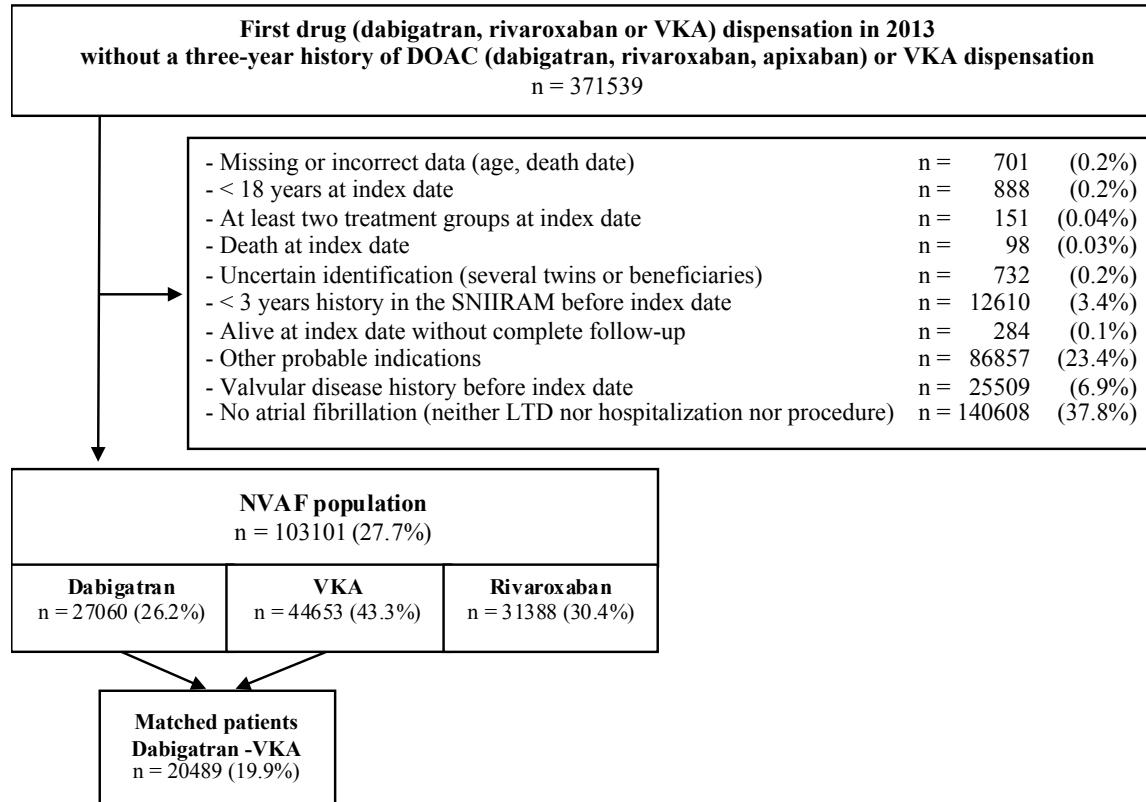
Objectif

- Estimer l'impact d'un hdPS sur les différences initiales entre
- Les patients initiant un traitement par anticoagulant oral direct (AOD) ou antivitamine K (AVK)
- Pour une fibrillation auriculaire non-valvulaire (FANV)
- D'après les données du SNIIRAM

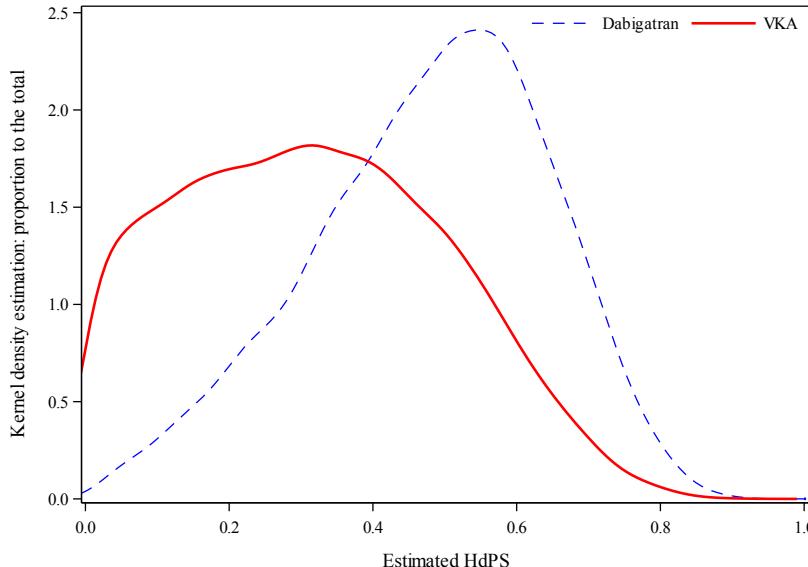
Méthodes

- Cohorte des sujets initiant un AOD ou un AVK pour une FANV en 2013, sans autre indication probable, identifiés et suivis pendant 1 an dans le SNIIIRAM
- Définition d'un hdPS AOD versus AVK (modèle régression logistique)
 - Variables forcées (caractéristiques socio-démographiques, facteurs de risque thromboembolique et hémorragique)
 - 500 variables sélectionnées parmi plus de 2000 dans 4 dimensions (ALD, diagnostics d'hospitalisation, médicaments, consultations médicales/paramédicales/biologie)
 - Codes les plus prévalents avec 3 indicatrices pour chaque variable (≥ 1 fois, \geq nombre médian, \geq 75ème percentile),
 - En maximisant le biais entre exposition et événement étudié (algorithme de Bross)

Population d'étude

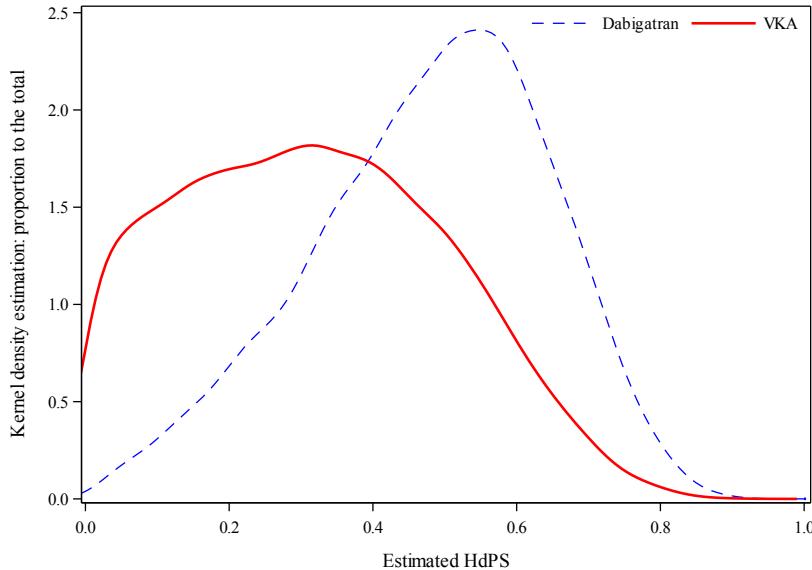


Courbe de distributions du hdPS

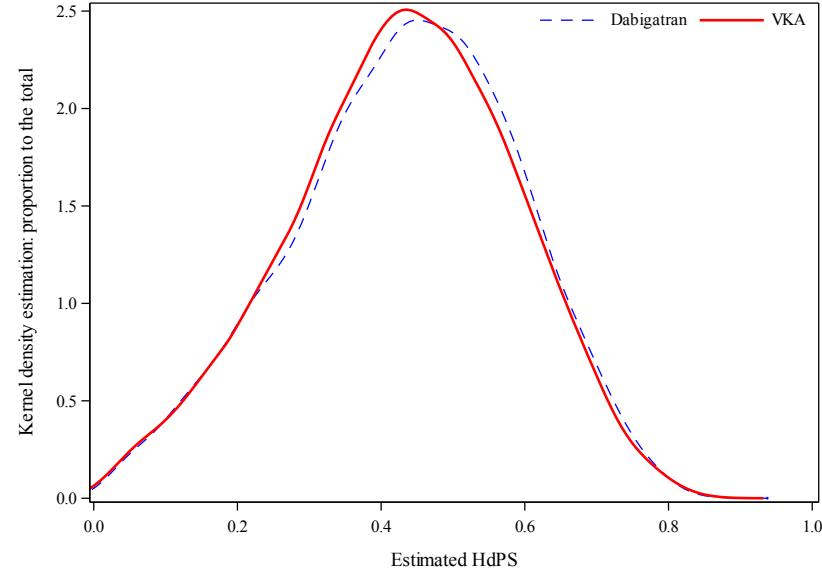


Globale

Courbe de distributions du hdPS



Globale



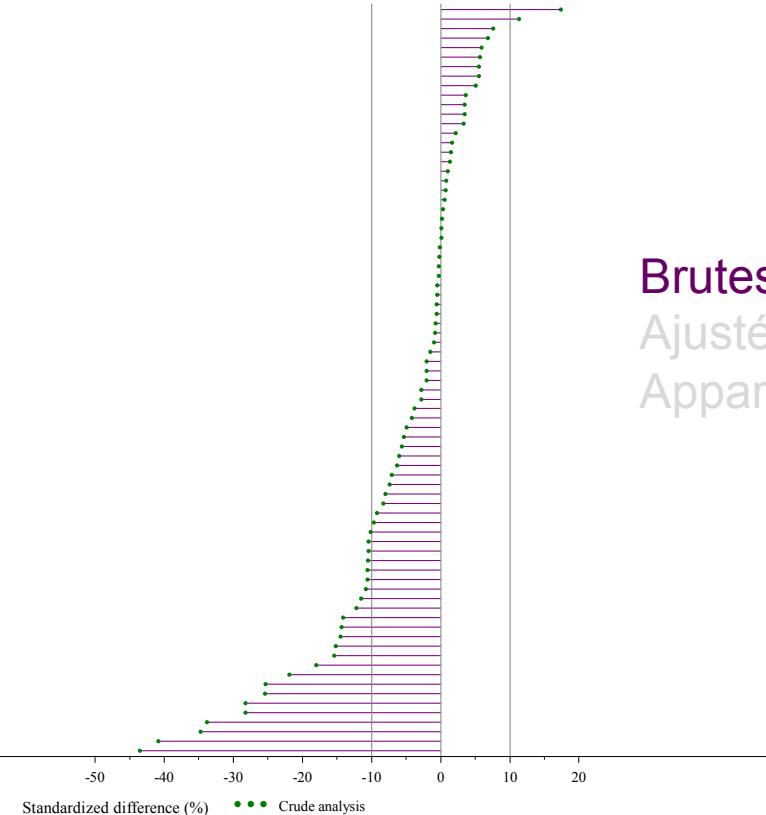
Après appariement 1:1
Sexe, âge, hdPS

Variables forcées

	All patients		Matched patients		Standardized difference (%) Dabigatran vs. VKA		
	Dabigatran n = 27 060	VKA n = 44 653	Dabigatran n = 20 489	VKA n = 20 489	Crude	Adjusted	Matched
Gender, n (%)					-10.4	0.1	0.0
Male	15253 (56.4)	22868 (51.2)	11164 (54.5)	11164 (54.5)			
Female	11807 (43.6)	21785 (48.8)	9325 (45.5)	9325 (45.5)			
Age at index date (in years)					-40.8	-1.3	-0.2
Size (missing data)	27060 (0)	44653 (0)	20489 (0)	20489 (0)			
Mean (± SD)	73.2 (11.8)	77.9 (11.1)	75.3 (10.7)	75.4 (10.7)			
Median	75.0	80.0	77.0	77.0			
[p25% - p75%]	[66.0;82.0]	[71.0;86.0]	[68.0;83.0]	[68.0;83.0]			
[Min - Max]	[18.0;105.0]	[18.0;107.0]	[25.0;102.0]	[24.0;103.0]			
CHA₂DS₂-VASc score (in categories), n (%)							
0	2381 (8.8)	1518 (3.4)	1192 (5.8)	1183 (5.8)			
1	3750 (13.9)	3171 (7.1)	2255 (11.0)	2196 (10.7)			
≥ 2	20929 (77.3)	39964 (89.5)	17042 (83.2)	17110 (83.5)			
HAS-BLED score (in categories), n (%)							
0	2703 (10.0)	1318 (3.0)	1251 (6.1)	1079 (5.3)			
1	7536 (27.8)	7776 (17.4)	5078 (24.8)	4968 (24.2)			
2	9649 (35.7)	15473 (34.7)	7714 (37.6)	7980 (38.9)			
3	5594 (20.7)	13399 (30.0)	4960 (24.2)	4999 (24.4)			
> 3	1578 (5.8)	6687 (15.0)	1486 (7.3)	1463 (7.1)			
Person-years of the 1st drug exposure, n	15903	27242	12067	12784			

Différences standardisées

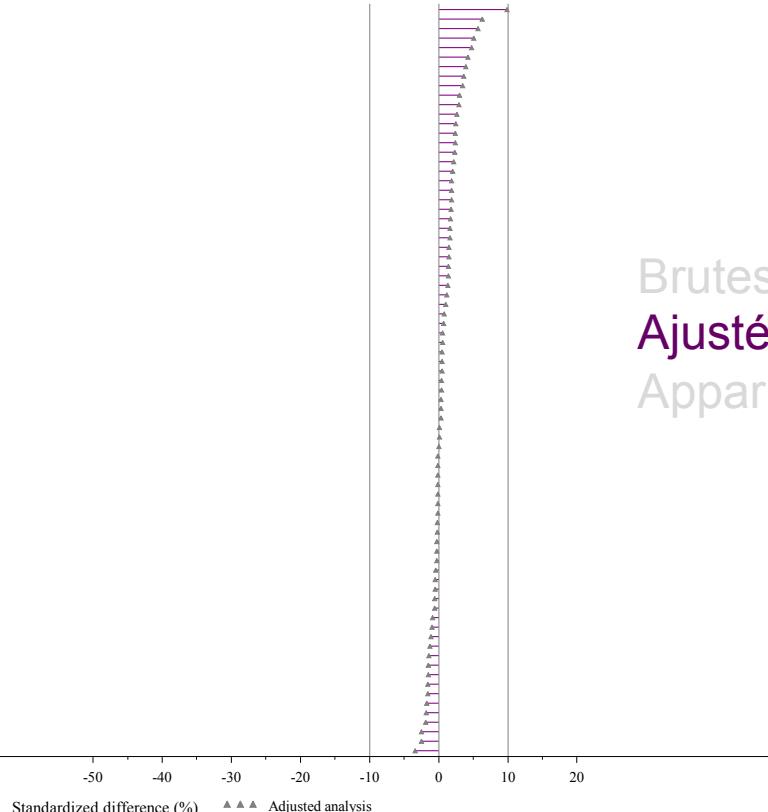
Stroke risk factors: Age 65-74 years
 Drugs - ATC C01BC04 - Flecamide
 Medical visits: Ophthalmology
 Medical visits: Cardiology
 Medical visits: Unknown specialty
 Drugs - ATC M01 - Musculo-skeletal system
 Medical visits: Orthopaedic surgery and Traumatology
 Medical visits: Dermatology and Venereology
 Medical visits: General practitioner
 Lab tests: Anatomical pathology
 Drugs - ATC R - Respiratory system
 Medical visits: Anesthesiologist
 Lab tests: Endocrinology
 Medical visits: Urological surgery
 Lab tests: Clinical chemistry
 Medical visits: General practitioner
 Lab tests: Assisted reproductive technology
 Lab tests: Diagnosis of hereditary disease
 Lab tests: Blood group disease
 Hospitalisations: Diseases of the eye and adnexa
 Lab tests: Virology
 Lab tests: Cytogenetics
 Drugs - ATC G - Genito urinary system and sex hormones
 Drugs - ATC H - Systemic hormonal prep, excluding sex hormones
 Lab tests: Clinical chemistry
 Lab tests: Haematology
 Lab tests: Proteins - tumour markers - vitamins
 Lab tests: Gene amplification for primary diagnosis
 Medical visits: General surgery
 Drugs - ATC N - Nervous system
 Medical visits: Hospital physician (undetermined specialty)
 Drugs - ATC J - General antinefectives for systemic use
 Lab tests: Haematology
 Drugs - ATC B01AB05 - Enoxaparin
 Hospitalisations: Diseases of the circulatory system
 Bleeding risk factors: Drugs - ATC D - Dermatologicals
 Drugs - ATC A - Alimentary tract and metabolism
 Bleeding risk factors: Abnormal liver function
 LTD 30
 Drugs - ATC C01BD01 - Amiodarone
 Drugs - ATC C01BD02 - Other drugs
 Drugs - ATC L - Antineoplastic and immunomodulating agents
 Drugs - ATC B01AC06 - Acetylsalicylic acid
 Stroke risk factors: Women
 LTD 12
 Lab tests: Microbiology
 Bleeding risk factors: Stroke history
 Stroke risk factors: Stroke or transient ischemic attack
 LTD 8
 Hospitalisations: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
 Stroke risk factors: Diabetes mellitus
 Drugs - ATC C - Cardiovascular system
 Hospitalisations: Factors influencing health status...
 Drugs - ATC B01AC04 - Clopidogrel
 Drugs - ATC B01AC05 - Aspirin
 Bleeding risk factors: Drugs predisposing to bleeding
 Bleeding risk factors: Age > 65 years
 Stroke risk factors: Hypertension
 Bleeding risk factors: Hypertension
 Stroke risk factors: Age > 75 years
 Stroke risk factors: Congestive heart failure
 Age at index date
 Bleeding risk factors: Abnormal renal function



Brutes
Ajustées
Appariées

Différences standardisées

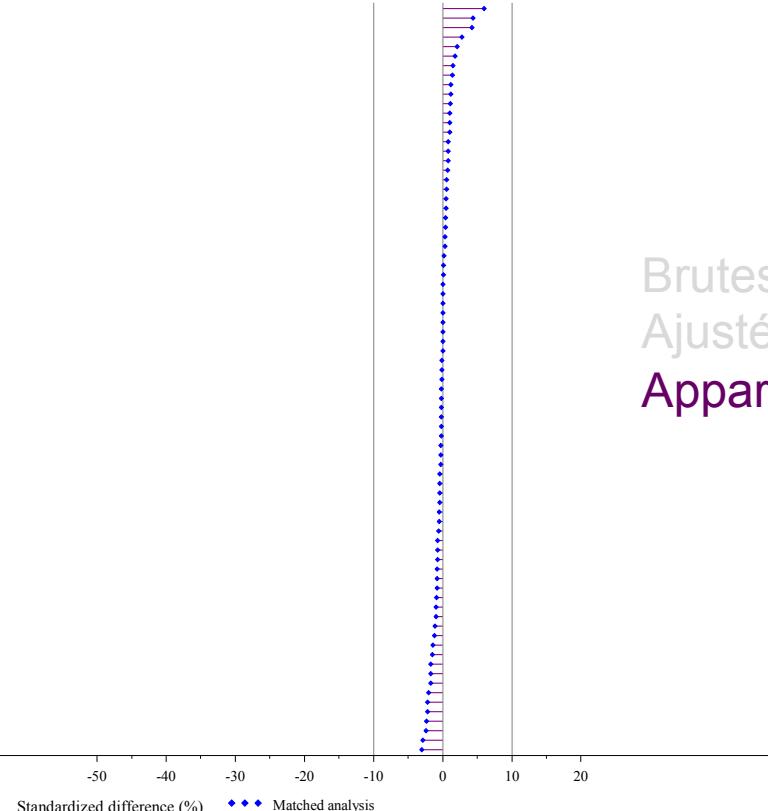
Bleeding risk factors: Age > 65 years
 Bleeding risk factors: Drugs predisposing to bleeding
 Stroke risk factors: Age > 75 years
 Hospitalisations: Diseases of the circulatory system
 Medical visits: Anesthesiology - Surgical reanimation
 Drugs - ATC: B - Blood and blood forming organs
 Stroke risk factors: Women
 Lab tests: Clinical chemistry
 Drugs - ATC: B01AC06 - Acetylsalicylic acid
 Drugs - ATC: B01AC01 - Aspirin
 Medical visits: General practitioner
 Drugs - ATC: B01AC04 - Clopidogrel
 Medical visits: Ophthalmology
 Drugs - ATC: C01BD01 - Amodarone
 Medical visits: Endocrinology
 Stroke risk factors: Women
 Stroke risk factors: Stroke or transient ischemic attack
 Lab tests: Clinical pathology
 Medical visits: Orthopaedic surgery and Traumatology
 Bleeding risk factors: Stroke history
 Drugs - ATC: S - Sensory organs
 Drugs - ATC: M - Musculoskeletal system
 Medical visits: Rheumatology
 LTD 3
 Hospitalisations: Diseases of the eye and ear
 Hospitalisations: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
 Drugs - ATC: G - Genito urinary system and sex hormones
 Drugs - ATC: N - Nervous system
 Medical visits: Urological surgery
 Drugs - ATC: N - Nervous system
 Drugs - ATC: P - Psychiatry
 Medical visits: General surgery
 Stroke risk factors: Congestive heart failure
 Stroke risk factors: Vascular disease history
 Lab tests: Microbiology
 Drugs - ATC: C - Cardiovascular system
 LTD 12
 Hospitalisations: Diseases of the musculoskeletal system
 LTD 13
 Bleeding risk factors: Hypertension
 Stroke risk factors: Hypertension
 Hospitalisations: Neoplasms
 Bleeding risk factors: Bleeding
 Gender
 Bleeding risk factors: Abnormal liver function
 Lab tests: Assays of blood coagulation
 Lab tests: Proteins - tumor markers - vitamins
 Medical visits: Dermatology and Venereology
 Drugs - ATC: J - Skin and subcutaneous tissue
 Drugs - ATC: C01BC03 - Pracaferone
 Hospitalisations: Diseases of the digestive system
 LTD 14
 Medical visits: Otorhinolaryngology
 Drugs - ATC: A - Alimentary tract and metabolism
 Medical visits: Gastroenterology and Hepatology
 Drugs - ATC: A - Alimentary tract and metabolism
 LTD 30
 Stroke risk factors: Diabetes mellitus
 Lab tests: Medical microbiology, parasitology
 Lab tests: Diagnosis of hereditary disease
 Drugs - ATC: H - Systemic hormonal prep, excretory products
 Lab tests: Viriology
 Drugs - ATC: P - Antiparasitic products
 Medical visits: Urology
 Age at index date
 Lab tests: Semen analysis
 Drugs - ATC: L - Antineoplastic and immunomodulating agents
 Medical visits: Hospital physician (undetermined specialty)
 Bleeding risk factors: Lab tests: Haematology
 Lab tests: Gene amplification (excluding prenatal diagnosis)
 Drugs - ATC: V - Various
 Drugs - ATC: C - Cardiovascular system
 Hospitalisations: Factors influencing health status
 Lab tests: Prenatal diagnosis



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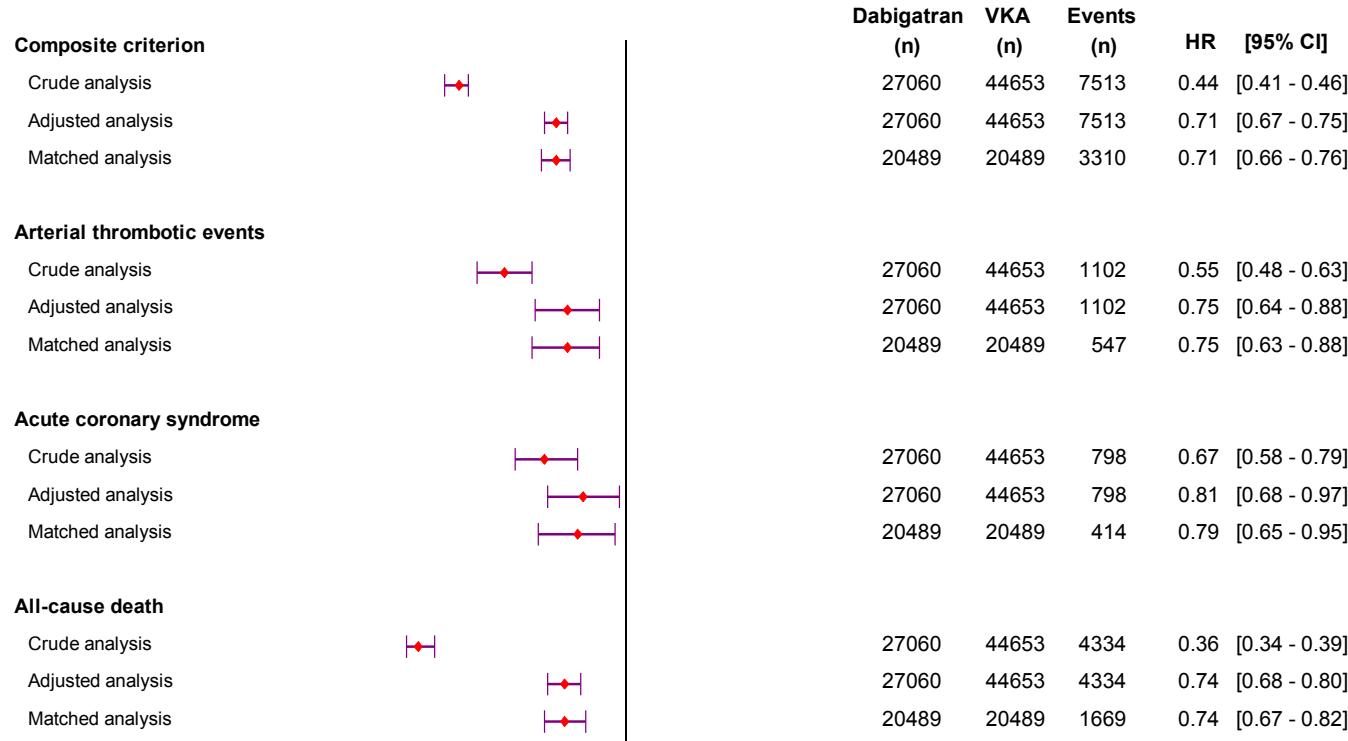
Différences standardisées

Hospitalisations: Diseases of the circulatory system
 Lab tests: Endocrinology
 Medical visits: Anesthesiology - Surgical reanimation
 Drugs - ATC: B01AC01 - Morphine
 Medical visits: Orthopaedic surgery and Traumatology
 Drugs - ATC: B01AC02 - Drugs - ATC: B01AC03 - Microbiology
 Drugs - ATC: G - Genito urinary system and sex hormones
 Medical visits: Ophthalmology
 Drugs - ATC: M - Mental health
 Medical visits: Urological surgery
 Lab tests: Clinical chemistry
 Drugs - ATC: N - Nervous system
 Lab tests: Enzymology
 Medical visits: General medicine
 Drugs - ATC: C01BC04 - Flecainide
 Lab tests: Histological pathology
 Medical visits: General medicine
 Drugs - ATC: B - Blood and blood forming organs
 Medical visits: Otorhinolaryngology
 Hospitalisations: Syringomyelia and arachnoiditis
 Lab tests: Radiopharmacy pathology
 Stroke risk factors: Age 65-74 years
 Medical visits: Dermatology and Venereology
 Drugs - ATC: B01AC04 - Cetirizine
 Lab tests: Immunology
 Medical visits: General surgery
 Lab tests: Assisted reproductive technology
 Lab tests: Diagnosis of hereditary disease
 Drugs - ATC: S - Sensory organs
 Bleeding risk factors: Age > 65 years
 Stroke risk factors: Stroke or transient ischemic attack
 Gender
 Lab tests: Virology
 Drugs - ATC: C01B001 - Amiodarone
 Stroke risk factors: Age = 75 years
 Lab tests: Prenatal diagnosis
 Medical visits: Unknown specialty
 Bleeding risk factors: Abnormal liver function
 Hospitalisations: Diseases of the digestive system
 Age at index date
 Lab tests: Toxic drugs
 Drugs - ATC: C01BC02 - Propafenone
 Drugs - ATC: C01BC03 - Propafenone
 Hospitalisations: Diseases of eye and ear
 Hospitalisations: Neoplasms
 LTD 5
 Drugs - ATC: B01AC04 - Cetirizine
 Bleeding risk factors: Stroke history
 Lab tests: Gene amplification (excluding prenatal diagnosis)
 Bleeding risk factors: Drug predisposing to bleeding
 Stroke risk factors: Vascular disease
 LTD 12
 Lab tests: Haematology
 Hospitalisations: Diseases of the musculoskeletal system
 LTD 13
 Bleeding risk factors: Bleeding history
 Medical visits: Hospital physician consultation
 Drugs - ATC: C - Alimentary tract and metabolism
 Drugs - ATC: H - Systemic hormonal prep, excluding sex hormones
 Drugs - ATC: J - General and symmetrical
 Stroke risk factors: Congestive heart failure
 Drugs - ATC: V - Various
 Drugs - ATC: C01BC01 - Propafenone
 Bleeding risk factors: Hypertension
 Stroke risk factors: Hypertension
 Hospitalisations: Factors influencing health status
 LTD 8
 LTD 30
 Drugs - ATC: L - Antineoplastic and immunomodulating agents
 Bleeding risk factors: Abnormal renal function
 Drugs - ATC: C - Cardiovascular system
 Stroke risk factors: Diabetes mellitus

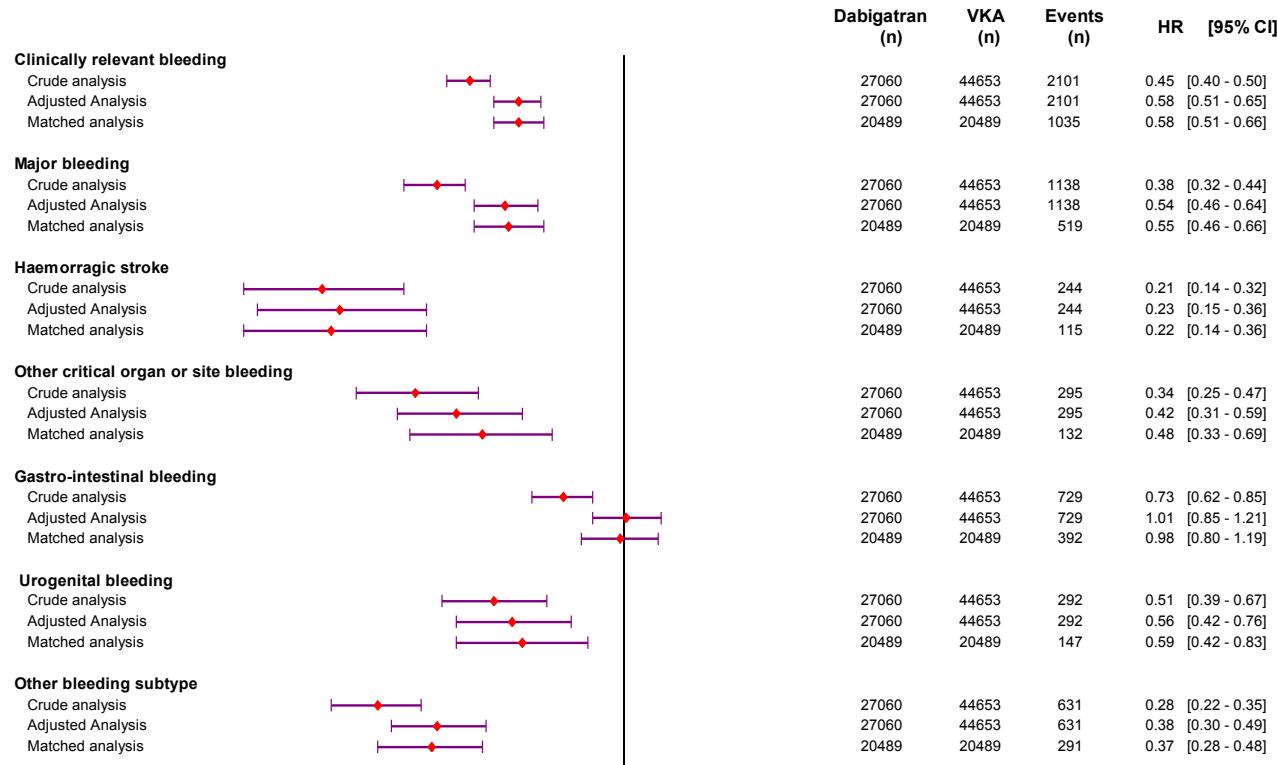


Brutes
Ajustées
Appariées

Effectiveness



Safety



Conclusion

- Le hdPS peut être utilisé comme variable d'ajustement, d'appariement et aussi de stratification (quintiles par exemple)
- C'est une méthode performante pour comparer deux groupes de traitement ou d'intervention dans la base de données du SNIIRAM



Merci pour votre attention

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