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Reproductibilité de la probabilité clinique implicite dans la suspicion d'embolie pulmonaire aux urgences

Inter-observer reliability of clinical gestalt in suspicion of pulmonary embolism in an emergency department

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List of abbreviations

PE	Pulmonary Embolism
CPP	Clinical Pretest Probability
CT-Scan	Computed Tomography
RGS	Revised Geneva Score
CP-G	Clinical Probability by Gestalt
ED	Emergency Department
VAS	Visual Analogic Scale
Guided CP-G	Guided Clinical Probability by Gestalt
VTE	Venous Thromboembolic Event
CI	Confidence Interval

Plan

Reproductibilité de la probabilité clinique implicite dans la suspicion d'embolie pulmonaire aux urgences.

Inter-observer reliability of clinical gestalt in suspicion of pulmonary embolism in an emergency department.

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SUMMARY

Introduction. The reliability of clinical gestalt (CP-G) in classifying patients according to their pulmonary embolism (PE) clinical pretest probability (CPP) is now clearly proved but its reproducibility has never been studied. So, our objective was to evaluate the agreement of PE CP-G between physicians in emergency department whatever their levels of experience. **Methods**. Our prospective, monocentric, analytic, non interventional study included patients who were eligible to a double medical evaluation and presented a suspicion of PE whatever the reason, in an emergency departement. The CPP of each patient was assessed twice and independently by two clinicians, using the CP-G only first, then, by reconsidering their CP-G after having estimated the Revised Geneva Score (Guided CP-G). The primary endpoint was the agreement between clinicians whatever their experience in classifying patients using CP-G. Kappa values and their 95% confidence intervals (Ci) were calculated to measure agreement. **Results**. 175 patients were included and 163 patients were analyzed. In our trial the prevalence of VTE was 12.2% (CI 95% 8.1-18.2). Agreement between clinicians was moderate for CP-G (κ = 0.43 CI 95% 0,31-0,55) and for Guided CP-G (κ = 0,5 CI 95% 0,38-0,62). When focusing on physicians in training, the agreement appears poor for CP-G (κ = 0.30 CI 95% 0.13-0.48) and slightly better for Guided CP-G (κ = 0.48 CI 95% 0.30-0.66). Nevertheless, the reproducibility of the Revised Geneva Score is moderate in our trial (κ = 0.60 CI 95% 0.48-0.71). **Conclusion**. The inter-observer reliability of CP-G is not as satisfying as hoped. The Guided CP-G would be a better alternative to assess CPP of PE but a wider trial must be performed.

Key words : Pulmonary Embolism ; Gestalt ; Inter-observer Reliability ; Experience

INTRODUCTION

Pulmonary Embolism (PE) remains a great challenge for the clinician. Indeed, the symptoms and signs of PE have a low specificity, there is a wide range of clinical presentations and a PE undiagnosed would have dramatic consequences. However, the sensitive issue of its exclusion often leads to useless and harmful tests.

For several years, we use clinical pretest probability (CPP) in the diagnostic strategy of PE to avoid long, useless and invasive explorations.

Estimation of CPP is an essential first step, enabling the right decision to measure D-Dimer test in case of low or moderate CPP or to realize a thoracic Computed Tomography (CT-Scan) directly if CPP is considered as high or if D-Dimer result is abnormal (1). To estimate this CPP, clinician can use various standardized and explicit scores validated in the past, like the Wells score (2) or the Revised Geneva Score (RGS) (3,4), or trust his clinical intuition also known as clinical gestalt assessment (CP-G).

Several studies have proved that clinical gestalt was as reliable and successful as explicit and standardized scores in classifying patients according to their pulmonary embolism CPP (5–7).

In fact, clinical gestalt allows to take notice of patient clinical history and physical examination that are not referenced in explicit probability scores and so, to estimate PE CPP more precisely and subtly. Nevertheless, the inter-observer reliability of the CP-G estimation is controverted because of its subjectivity and the possible influence of clinician experience on the accuracy of this estimation (8–11). The agreement between clinicians according to levels

of experience have already been studied and seems to be safe for the Wells score but has never been studied for CP-G (11).

The primary purpose of this study is to evaluate the reproducibility of PE CP-G between physicians in emergency department, whatever the clinician level of experience. Our second objective is to assess the safety of using CP-G according to the level of experience.

POPULATION AND METHODS

Study design

We conducted a prospective, analytic, non-interventional study of patients presenting to the emergency department (ED) of an urban academic hospital in France (Angers). The study was conducted between December 2015 and October 2016 with a follow-up period of three months.

Patients

Patients were enrolled if they were eligible to a double medical evaluation and presented a suspicion of pulmonary embolism whatever the reason: dyspnea or chest pain without formal explanation after simple and general further evaluations (ECG, chest X-ray). These patients were also included in a multicentric, observational study to validate the PERC rule (PERCEPIC, in the process of submission)

Patients could not be included if they matched predefined criteria: younger than 18 years old, hospitalized for more than 48 hours, receiving a therapeutic anticoagulation for 48 hours or more at the time of the admission, previous diagnostic of thromboembolic disease (deep venous thromboembolism or pulmonary embolism), impossible follow-up, or patients refusing the inclusion.

We have secondarily excluded patients who received an anticoagulative therapeutic for an other reason than venous thromboembolic disease for more than five days during the follow-up period.

Data collection

Patients presenting at the emergency department could be managed by physicians with different levels of experience (physicians in training, physicians with less than 2 years of experience in emergency department also called residents or supervising physicians).

After patient clinical evaluation, the clinician (Physician A) had to estimate his CP-G on a timestamped questionnaire(Annex 1) checking the corresponding box (low, intermediate, high) and marking a visual analogic scale (VAS) of 100mm ranging from 0% to 100%. Then, after having filled out the Revised Geneva Score (RGS), the clinician had to estimate his new CPP guided by RGS (Guided CP-G) using the same method as the first time.

Each patient enrolled was independently evaluated by a second clinician with a different or same level of experience (Physician B). The range of CPP were not defined in the questionnaire.

Whatever the disagreements on the evaluation of the pretest probability, the decision was made by the most experienced physician.

Every patients enrolled were followed-up three months after inclusion in the study. A standardized phone interview with the patient or his general practitioner was carried out to find out if a thromboembolic event occurred.

Algorithm for diagnosis of PE was the one proposed by the ESC 2014 (1). The present study did not interfere in patients' diagnosis nor in their therapies. The tools used were the routine tests used in venous thromboembolic diseases diagnostic. Every treatment was authorized.

Studied criteria

The primary endpoint of this study was the agreement in classifying patients using CP-G estimated by different clinicians whatever their experience. We considered as an agreement when the two physicians had a same CP-G.

The secondary endpoints were the agreement in classifying patients using guided CP-G estimated by different clinicians, the agreement according to the experience of the clinicians using CP-G and guided CP-G. The analysis was made between physicians in training, physicians in training and experienced clinicians and between physicians in training and clinicians with less than 2 years of experience.

We also evaluated the performance of the CP-G for the thromboembolic events rate during the 3 months follow-up period according to the levels of experience.

On the one hand, the inter-observer reliability was considered as satisfying if the lower rate of the 95% CI of the agreement was over 0.61 with Cohen's Kappa (12). On the other hand, the estimation of clinical gestalt on a VAS was considered as consistent if the physicians classified in the same range: low (<15%), intermediate (15- 50%) or high (>50%).

Furthermore, we studied the agreement of the RGS between all the physicians whatever their experience and we focused on the physicians in training to estimate the agreement of each item of this score.

Ethics

The project was approved by the Angers academic hospital research ethics board on the January 13, 2016 and a written information letter was delivered to all the patients included in our study.

Statistical analysis

All the data were collected in an Excel spreadsheet and Cohen's Kappa (κ) was calculated according to the following formula κ=Po-Pe/1-Pe, where Po is the actual probability of agreement and Pe is the expected agreement by chance. The 95% CI were also calculated for the kappa, *p* has been calculated and a difference with a $p<0,05$ was considered as significative.

RESULTS

From December 12, 2015 to October 30, 2016, 175 patients were included in our study. Among these patients, 12 (6.8%) were excluded and the analysis was realized on 163 patients**(Fig 1).** A venous thromboembolic event (VTE) occurred for 20 patients, our prevalence of VTE was 12,2% (CI 95%: 8.1-18.2). We detailed the prevalence of PE of each category in Fig 1.

Regarding the patients, the average age was 55.1 years old and the sex ratio (Male/Female) was 0.7**(Table I).**

Concerning the physicians, there was no significant difference between the groups**(Table II)**.

The agreement (Cohen's Kappa) whatever the experience of the clinicians on the Clinical Gestalt (CP-G) was κ = 0.43 (CI 95%: 0.31-0.55)**(Table III).** About the Guided Clinical Gestalt (Guided CP-G) the agreement was found at κ = 0.50 (CI 95% : 0.38-0.62)**(Table IV).**

Besides, between physicians in training and experienced physicians, κ = 0.53 (CI 95% : 0.26-0.80) for the CP-G **(Table V)** and κ = 0.46 (CI 95% : 0.46-0.74) regarding the clinical gestalt guided by RGS between the same groups**.**

Likewise, we found κ = 0.46 (CI 95% : 0.21-0.71) for the CP-G between physicians in training and residents and κ = 0.50 (CI 95% : 0.26-0.73) for Guided CP-G.

Finally, the agreement between physicians in training only was κ = 0.30 (CI 95% : (0.13-0.48) for CP-G and κ = 0.48 (CI 95% : 0.30-0.66) for Guided CP-G.

Moreover, we calculated the agreement between clinicians whatever their experience according to their ratings on the VAS. The reliability found was κ = 0.19 (CI 95% : 0.06-0.32) for CP-G **(Table VI)** and κ = 0.37 (CI 95% : 0.24-0.49) for Guided CP-G.

Furthermore, we studied the RGS in our cohort. The agreement using the RGS was κ = 0.60 (CI 95% : 0.48-0.71) between the clinicians regardless their experience **(Table VII),** Besides, the agreement focused on the physicians in training only was found at κ = 0.62 (CI 95% : 0.46-0.78) and the agreement between each items of the RGS are described in the table VIII.

Finally, our prevalences of PE in physicians in training A, for example, are: 6.5% in low CP-G, 20.9% in intermediate CP-G and 41.6% in high CP-G **(Table IX-X).**

DISCUSSION

We performed a prospective study with 163 patients admitted in an emergency department with a suspicion of PE to evaluate the inter-observer reliability of clinical gestalt to assess the clinical pretest probability of pulmonary embolism instead of the use of standardized and explicit scores, whatever the clinician level of experience.

CP-G

The inter-observer agreement for CP-G of PE appears to be « moderate » (κ = 0.43 CI 95%: 0.31-0.55) as defined by Landis and Koch in 1977 (12). This disappointing agreement is consistent with the results found by Kline and al (κ = 0.60) (6) or Rodger and al (κ = 0.33) (8). Our study is probably underpowered and can explain our low agreement using the gestalt (N=163). Moreover, many clinicians are in training in our study (71.7%). We may guess that their clinical experience is not sufficient to consider all the factors and make their CP-G accurate, regarding the variety of the clinical presentations of PE. The CP-G of PE will surely not be assessed the same way by two clinicians of different experiences and personal histories.

Guided- CP-G

Therefore, we tried to know if the Guided CP-G (the gestalt evaluated after checking the RGS probability) improved the inter-observer agreement. Indeed, the agreement was improved from κ = 0.43 to κ = 0.50 for the Guided CP-G but with a similar CI 95%. We can imagine that the Guided CP-G, with the

objective items of RGS allows more reproducibility, in addition to the subjectivity of gestalt. In 2002, Chagnon et al. (13), found that the association of clinical gestalt with Geneva score enabled to correct the disagreements between the two invariable models. Then, it seems to confirm that the gestalt helped by an explicit rule may be as sure as explicit models used alone and the disagreements are lower using that way of assessment.

Impact of experience and CP-G

In addition, we analyzed the impact of experience in the agreement in pretest probability assessment. We could not make analysis between experienced clinicians or between residents because of the lack of patients assessed by these configurations. We found that the agreement improved while the physicians in training were compared to more experienced clinicians. The Cohen's kappa between physicians in training alone, physicians in training and residents, and physicians in training and experienced clinicians were respectively $\kappa = 0.30$, $\kappa = 0.46$ and $\kappa = 0.53$ with a wide confidence interval.

These results are lower than in the study of Penaloza et al. who found an agreement of $\kappa = 0.66$ between physicians in training and experienced supervising physicians on a sample of 50 patients for the Wells score (11). This difference may be explained by the fact that in our trial, the physicians in training should not ask experienced physicians before their both assessments whereas in the Penaloza et al. study some assessments were supervised by experienced physicians. Moreover, physicians in training in Penaloza et al. study were 2 years post graduate experienced whereas in our study they were in their first internship in an emergency department.

Impact of experience and Guided CP-G

Otherwise, it is interesting to notice that the clinical gestalt overridden by RGS, improves the agreement between 2 categories of clinicians among 3. Indeed, the agreement between physicians in training step up from κ = 0.30 to 0.48 and the agreement between them and residents step up from κ = 0.46 to 0.50 whereas, the Cohen's kappa between physicians in training and experienced decrease from κ = 0.53 to 0.46. Therefore, we can guess that the RGS is less efficient to correct the gestalt as much as the experience increases.

CP-G and VAS

In another way, the pretest probability was assessed by clinicians in marking their probability on a VAS from 0% to 100%. In our analysis, our agreement using VAS was « poor » with κ = 0.19 (CI 95% : 0.06-0.32) even if it is improved when overridden by RGS (κ = 0.37 CI 95% : 0.24-0.49). We could guess that this result is relevant to the fact that the threshold levels of classification are depending on each physician. It seems to be difficult to use a VAS for this estimation because of the poor agreement between physicians mostly due to the discrepancies between a percentage and the estimated probability ranges. In fact, a high probability presentation of PE may be checked at 45% by a clinician and another will match it at 80%. A contrario, a clinician who assesses the probability as low may estimate it at 10% whereas the other will estimate it at 30%. These mismatches make poor agreements because of the study cut-offs are very subjectives in each physician mind.

Recently, Hendriksen et al shown that the gestalt was as sure as Wells to exclude PE if the probability estimated on VAS was less than 20% in primary

care (14). Moreover, Nordenholz et al. using a VAS, found an agreement at κ = 0.63 for the pretest probability of PE using the gestalt by VAS, but after estimation of the Wells score which may improve the agreement (15).

RGS

Our trial found a moderate inter-observer agreement for the RGS with a Cohen's Kappa at κ = 0,60 (CI 95%: 0.48-0.71) whereas it is an explicit test. In our study, inter-observer reliability between CP-G and RGS is moderate and substantially similar: respectively κ = 0.43 (CI 95%: 0.31-0.55) and 0.60 (CI 95%: 0.48-0.71) but the size of our population is too small to conclude.

Therefore, our results are disappointing but this must be compared to the inter-observer consistency of the RGS which is a validated prediction rule in the pretest probability of PE assessment (3). Indeed, in our study the agreement using the RGS alone is κ = 0.60 with a better agreement when focusing on the physicians in training (κ =0.62 ; CI 95% : 0.46-0.78). In her study, Sophie Dambrine found a better agreement for the RGS (κ = 0.73) than in our trial, probably due to the largest sample of patients (N= 473) (16). When focusing on the physicians in training we studied the agreement of each item of the RGS. The most reliable were the historical questions except the immobilization one probably because of the low number of patients. The heart rate and the leg pain or swelling at examination were the questions with the lowest agreement at κ = 0.62 and κ = 0.70, respectively. These results are consistent with the trial of Sophie Dambrine which found a Cohen's Kappa at 0.69 for heart rate and 0.49 for leg pain or swelling. Likewise, Rodger et al, indicated that the agreement on the heart rate was κ = 0.60 (8). The first

reason to this result is that the heart rate is a value which is changing so the agreement is more varying.

Performance of CP-G

In comparison to the literature, it appears that the agreement is moderate and much lower than validated prediction rules like RGS. However, we confirmed that the reliability of ranking in the 3 categories of pretest probability (low, intermediate, high) is sure. Indeed, the numbers of VTE in each group were consistent with the literature datas (3,5,17). In fact, Kabhrel et al showed that experience is an essential factor which improve the accuracy of pretest probability assessment but the difference is not enough significant to say that prediction rule is useless for one category of clinician (9).

Finally, it is interesting to note that a previous study led in 2007 by Runyon et al, confirmed by a study made in 2008 by Weiss et al, demonstrated that a major part of the physicians were preferring their CP-G to clinical standardized scores in more than the half of PE suspicion cases (18,19).

Limits

However, our trial contains some limitations and bias. Firstly, the low number of patients included and analyzed made the analysis less reliable particularly in some fields like the agreement regarding the experience or the items of the RGS. In fact, the recruitment of patients takes a long time particularly when two physicians must assess the CP-G on each patient. Moreover, time is valuable in an emergency department so the double assessment may have been forgotten. Secondly, we can guess that the double assessment was not

as independent as it should be. Indeed, in real life, the first physician which assessed was often a physician in training who talked about the history and symptoms of the patient before his supervisor would have assessed his proper pretest probability. Furthermore, sometimes the second physician was a clinician who was less involved in the further management of the patient so his assessment may have been less “strict”.

CONCLUSION

To conclude, it seems that the gestalt is an interesting way to assess the pretest probability of PE but the inter-observer agreement is not as satisfying as it should be to make it useful in all situations. The experience seems to have an accuracy impact on the assessment. However, the Guided CP-G would be a good alternative to assess the pretest probability of PE. To increase the agreement of CP-G a wider trial must be performed.

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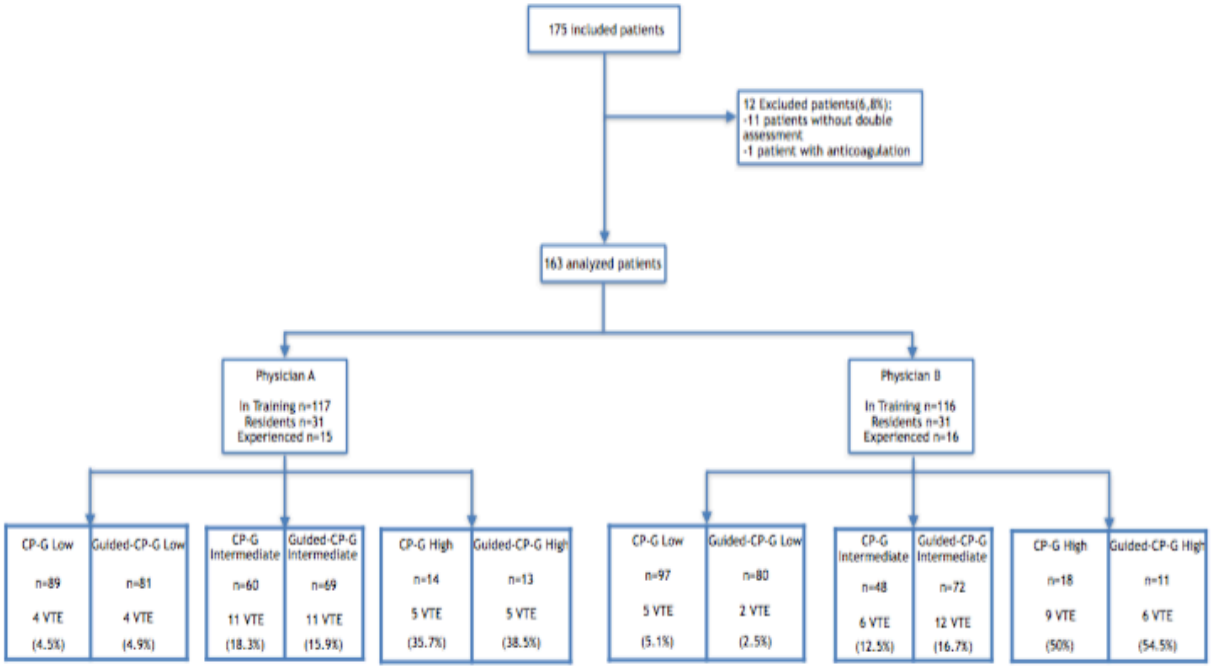

Figure 1 : Flow chart of the study

CP-G : Clinical Probability by Gestalt
Guided-CP-G : Guided Clinical Probability by Gestalt
VTE : Venous Thromboembolic Event

LIST OF TABLES

Table I : Characteristics of the study cohort

Characteristics	Included patients n=163	
	N or mean	Standard Deviation or % (CI 95%)
Age (mean, standard deviation)	55.07	21.8
Male/Female (n/n, sex ratio)	66/97	0.7
PE (n, %, CI 95%)	13	8% (4.7-13.2)
DVT (n, %, CI 95%)	7	4.2% (2.1-8.6)
Death during follow-up except death due to PE (n, %, CI 95%)	11	6.7% (3.8-11.7)
Ultrasonography during follow-up (n, %, CI 95%)	10	6.1% (3.4-10.9)
CT-scan during follow-up (n, %, CI 95%)	9	5.5% (2.9-10.2)
Ventilation/Perfusion scan during follow-up (n, %, CI 95%)	3	1.8% (0.6-5.3)

PE = Pulmonary Embolism
DVT = Deep Vein Thrombosis

Table II : Characteristics of the study physicians

Experience	Physician A	Physician B	p
Physicians in training (n)	117	116	p = 0.97
Residents physicians (n)	31	31	p = 1
Experienced physicians (n)	15	16	p = 1.07

Table III : Agreement of CP-G between different physicians (N=163)

Physician CP-G A / Physician CP-G B	*Low (n)*	*Intermediate (n)*	*High (n)*
Low (n)	74	22	1
Intermediate (n)	14	29	5
High (n)	1	9	8
Kappa	**0.43 (0.31-0.55)**		

CP-G = Clinical Probability by Gestalt

Table IV : Agreement of Guided CP-G between different physicians (N=163)

Guided CP-G Physician A / Guided CP-G Physician B	*Low (n)*	*Intermediate (n)*	*High (n)*
Low (n)	62	17	1
Intermediate (n)	19	48	5
High (n)	0	4	7
Kappa (k, CI 95%)	**0.50 (0.38-0.62)**		

Guided CP-G = Guided Clinical Probability by Gestalt

Table V : Agreement on CP-G between physicians in training and experienced physicians (N = 28)

Experienced CP-G / In training CP-G	*Low (n)*	*Intermediate (n)*	*High (n)*
Low (n)	12	2	0
Intermediate (n)	3	5	2
High (n)	0	1	3
Kappa (k, CI 95%)	**0.53 (0.26-0.80)**		

CP-G = Clinical Probability by Gestalt

Table VI : Agreement on CP-G assessed by VAS between different clinicians (N = 163)

CP-G Physician A / CP-G Physician B	*Low <15% (n)*	*Intermediate 15-50% (n)*	*High >50% (n)*
Low <15% (n)	22	21	4
Intermediate 15-50% (n)	24	54	12
High >50% (n)	1	15	10
Kappa (k, CI 95%)	**0.19 (0.06 ; 0.32)**		

CP-G = Clinical Probability by Gestalt
VAS = Visual Analogic Scale

Table VII : Agreement on RGS between different clinicians (N = 163)

RGS Physician A / RGS Physician B	*Low RGS < 4 (n)*	*Intermediate RGS = 4-10 (n)*	*High RGS > 11 (n)*
Low RGS < 4 (n)	63	15	0
Intermediate RGS = 4-10 (n)	12	63	4
High RGS > 11 (n)	0	4	2
Kappa (k, CI 95%)	**0.60 (0.48 ; 0.71)**		

RGS = Revised Geneva Score

Table VIII : Agreement on items of the RGS between physicians in training

Items	Physician A (n)	Physician B (n)	*Kappa*	*CI 95%*
Age > 65 y	36	36	1	1
Personal history of DVT and/or PE	15	16	0.96	0.88-1
Immobilisation or surgery < 4 weeks	5	6	0.31	-0.66-0.69
Active malignant condition (currently active or considered cured < 1 year	7	6	0.75	0.47-1
Unilateral lower-limb pain	16	16	0.92	0.81-1
Hemoptysis	4	4	1	1
Heart rate > 75bpm	52	58	0.62	0.43-0.81
Pain on lower-limb deep veinous palpation and unilateral oedema	11	8	0.70	0.45-0.95
Total of RGS			**0.62**	0.46-0.78

RGS = Revised Geneva Score
DVT = Deep Vein Thrombosis
PE = Pulmonary Embolism
VTE = Veinous Thromboembolic Event

Table IX : Number of VTE according to the CP-G and the physician A status (N = 163)

Physician A / CP-G	In training	Residents	Experienced
Low (n/X, %)	4/61 (6.5%)	0/18 (0%)	0/9 (0%)
Intermediate (n/X, %)	9/43 (20.9%)	0/11 (0%)	2/6 (33.3%)
High (n/X, %)	5/12 (41.6%)	0/2 (0%)	0/0 (0%)

VTE = Veinous Thromboembolic Event
CP-G = Clinical Probability by Gestalt

Table X : Number of VTE according to the CP-G and the physician B status (N = 163)

Physician B / CP-G	In training	Residents	Experienced
Low (n/X, %)	2/64 (3.1%)	2/23 (8.7%)	1/9 (11.1%)
Intermediate (n/X %)	5/39 (12.8%)	1/7 (14.2%)	0/2 (0%)
High (n/X %)	8/12 (66.6%)	0/1 (0%)	1/5 (20%)

VTE : Veinous Thromboembolic Event
CP-G = Clinical Probability by Gestalt

TABLE OF CONTENT

PERCEPIC

PATIENT : NOM _____

PRENOM _____

DATE DE NAISSANCE : |_|_|/|_|_|/|_|_|_|_|

SEXE : ❍1 Homme ❍1 Femme

NUMÉRO DE TELEPHONE : |_|_| |_|_| |_|_| |_|_| |_|_|

DATE D'INCLUSION : |_|_|/|_|_|/|_|_|_|_|

Etiquette patient

Fréquence Cardiaque			|_|_|_| bpm
Saturation en O2	|_|_| %	❍ Air ambiant	❍ O_2
Antécédent(s) et Traitement			
Antécédent(s) familiaux de TVP ou EP (parent - enfants au 1er degré)		❍1 Oui	❍0 Non
Alitement > 48h dans le mois précédent		❍1 Oui	❍0 Non
Voyage assis > 6h dans le mois précédent		❍1 Oui	❍0 Non
Grossesse en cours		❍1 Oui	❍0 Non
Post-partum < 4 semaines		❍1 Oui	❍0 Non
Traitement contraceptif ou hormonal œstrogénique		❍1 Oui	❍0 Non
Signes et symptômes cliniques			
Syncope, malaise, lipothymie		❍1 Oui	❍0 Non
Turgescence jugulaire		❍1 Oui	❍0 Non
Turgescence du réseau veineux superficiel MI		❍1 Oui	❍0 Non
Œdème unilatéral du MI		❍1 Oui	❍0 Non
Autre hypothèse diagnostique ?		❍1 Oui	❍0 Non
Si oui, précisez : _____			
L'EP est-elle le diagnostic le plus probable ?		❍1 Oui	❍0 Non

Score Révisé de Genève			
Âge > 65 ans	❍1 Oui	❍0 Non	+1
Antécédent personnel de TVP et/ou d'EP	❍1 Oui	❍0 Non	+3
Immobilisation ou chirurgie < 4 semaines	❍1 Oui	❍0 Non	+2
Cancer actif (traitement en cours ou rémission < 1 an)	❍1 Oui	❍0 Non	+2
Douleur jambe unilatérale	❍1 Oui	❍0 Non	+3
Hémoptysies	❍1 Oui	❍0 Non	+2
Fréquence cardiaque 75-94 bpm	❍1 Oui	❍0 Non	+3
Fréquence cardiaque ≥ 95 bpm	❍1 Oui	❍0 Non	+5
Douleur à la palpation et œdème unilatéral de jambe	❍1 Oui	❍0 Non	+4
Score total (0-3 : PC faible, 4-10 : PC modérée, ≥11 : PC élevée) :			|_|_|

Probabilité Clinique Implicite (PCI) guidée après recueil standardisé et après calcul du Score Révisé de Genève

Estimation de la PCI (Gestalt) après calcul du score :

Le |_|_|/|_|_|/|_|_|_|_| à |_|_|:|_|_|

❍1 **Faible**
❍2 **Modérée**
❍3 **Elevée**

Et faire une marque correspondant à votre probabilité de 0 à 100 :

0 ——————————— 100

TSVP

Radiographie thoracique	❍1 Oui	❍0 Non
Si Oui, l'avez-vous prise en compte pour la PCI ?	❍1 Oui	❍0 Non
❍0 Radio Normale		
❍1 Radio Anormale évocatrice d'un autre diagnostic		
❍2 Radio Anormale non évocatrice ou non interprétable		

ECG :	❍1 Oui	❍0 Non
Si Oui, l'avez-vous pris en compte pour la PCI ?	❍1 Oui	❍0 Non
❒ ECG normal		
❒ ECG anormal évocateur d'un autre diagnostic		
❒ ECG anormal non évocateur d'un autre diagnostic		

À METTRE DANS LA BOITE AUX LETTRES PERCEPIC.
MERCI !

Si vous retrouvez la feuille dans le dossier médical,
Merci de l'adresser au secrétariat des Urgences.

Motif(s) d'entrée à l'admission			Depuis
❒ Dyspnée ou majoration récente de la dyspnée			|_|_| jours
❒ Douleur thoracique			|_|_| jours
Reproductible à la palpation	❍1 Oui	❍0 Non	ou
Respiro-dépendante	❍1 Oui	❍0 Non	|_|_|h
❒ Autre motif de suspicion d'EP			|_|_| jours
Précisez : _____			

Probabilité Clinique Implicite (PCI) APRÈS examen du patient

Le |_|_|/|_|_|/|_|_|_|_| à |_|_|:|_|_|

❍1 **Faible**
❍2 **Modérée**
❍3 **Elevée**

Et faire une marque correspondant à votre probabilité de 0 à 100 :

0 ——————————— 100

Votre niveau d'expérience professionnelle :

❍1 Interne
❍2 Assistant
❍3 Expérimenté

INCLUS PAR : NOM _____

PRENOM _____

Saisie informatique ❍1 Oui ❍0 Non

TSVP

CHU ANGERS

RAFAUD Pierre-Maxime

Reproductibilité de la probabilité clinique implicite dans la suspicion d'embolie pulmonaire aux urgences.

RÉSUMÉ

Introduction. La fiabilité de la probabilité clinique implicite (PCI) pour classer les patients selon leur probabilité pré-test d'embolie pulmonaire (EP) est désormais clairement prouvée mais sa reproductibilité n'a jamais été étudiée. Ainsi, notre étude avait pour but d'évaluer la reproductibilité de la PCI d' EP entre cliniciens d'un service d'urgences quels que soient leurs niveaux d'expérience. **Méthodes.** Notre étude, prospective, monocentrique, analytique, non interventionnelle a inclus les patients se présentant aux urgences, éligibles à une double évaluation médicale et pour lesquels une embolie pulmonaire était suspectée, quelle que soit la raison de cette suspicion. La probabilité pré-test de chaque patient était estimée à deux reprises, de façon indépendante par deux médecins différents. Une première fois en utilisant la simple PCI puis, en ré-estimant la PCI après calcul du Score de Genève Révisé (PCI guidée). Le critère de jugement principal était le taux d'accord entre cliniciens, quels que soient leur niveaux d'expérience, dans le classement des patients en utilisant la PCI. Ce taux d'accord a été mesuré en calculant le Kappa de Cohen et ses intervalles de confiance à 95%. **Résultats**. 175 patients ont été inclus dans l'étude et 163 patients ont pu être analysés. Notre prévalence d'évènements thromboemboliques était de 12.2% (IC 95% 8.1-18.2%). L'accord entre cliniciens pour la PCI était modéré (κ = 0.43 IC 95% 0,31-0,55) ainsi que pour la PCI guidée (κ = 0,5 CI 95% 0,38-0,62). Plus précisément, l'accord entre internes était pauvre pour la PCI (κ = 0.30 CI 95% 0.13-0.48) et légèrement meilleur pour la PCI guidée (κ = 0.48 CI 95% 0.30-0.66). Néanmoins, notre étude retrouve une reproductibilité du Score de Genève Révisé modérée (κ = 0,60 CI 95% 0,48-0,71) **Conclusion**. La reproductibilité de la PCI n'est pas aussi satisfaisante qu'espérée. La PCI guidée pourrait être une meilleure alternative pour estimer la probabilité pré-test d'EP mais une étude de plus grande ampleur doit être menée.

Mots-clés : Embolie Pulmonaire ; Probabilité Clinique Implicite ; Reproductibilité ; Expérience

Inter-observer reliability of clinical gestalt in suspicion of pulmonary embolism in an emergency department

ABSTRACT

Introduction. The reliability of clinical gestalt (CP-G) in classifying patients according to their pulmonary embolism (PE) clinical pretest probability (CPP) is now clearly proved but its reproducibility has never been studied. So, our objective was to evaluate the agreement of PE CP-G between physicians in emergency department whatever their levels of experience. **Methods**. Our prospective, monocentric, analytic, non interventional study included patients who were eligible to a double medical evaluation and presented a suspicion of PE whatever the reason, in an emergency departement. The CPP of each patient was assessed twice and independently by two clinicians, using the CP-G only first, then, by reconsidering their CP-G after having estimated the Revised Geneva Score (Guided CP-G). The primary endpoint was the agreement between clinicians whatever their experience in classifying patients using CP-G. Kappa values and their 95% confidence intervals (Ci) were calculated to measure agreement. **Results**. 175 patients were included and 163 patients were analyzed. In our trial the prevalence of VTE was 12.2% (CI 95% 8.1-18.2). Agreement between clinicians was moderate for CP-G (κ = 0.43 CI 95% 0,31-0,55) and for Guided CP-G (κ = 0,5 CI 95% 0,38-0,62). When focusing on physicians in training, the agreement appears poor for CP-G (κ = 0.30 CI 95% 0.13-0.48) and slightly better for Guided CP-G (κ = 0.48 CI 95% 0.30-0.66). Nevertheless, the reproducibility of the Revised Geneva Score is moderate in our trial (κ = 0.60 CI 95% 0.48-0.71). **Conclusion**. The inter-observer reliability of CP-G is not as satisfying as hoped. The Guided CP-G would be a better alternative to assess CPP of PE but a wider trial must be performed.

Keywords : Pulmonary Embolism ; Gestalt ; Inter-observer Reliability ; Experience

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