The Clotting Times

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ECAT Foundation
P.O. Box 30
2300 AA Leiden
The Netherlands
Website:
www.ECAT.nl
E-mail:
info@ecat.nl
Phone:
+31.(0)88.8669718
Fax:
+31.(0)88.8668965

Editorial

In this third issue of the new Clotting Times we would like to start with a Focus Article about long-term evaluation of External Quality Assessment results. This article provides background information about the quality management system for evaluating test performance over a prolonged period of time. A web tool for the assessment of the long-term analytical performance is now available at the ECAT website.

In this issue we give also background information about the statistical model used for the evaluation of exercise results, Algorithm A.

Some clinical conditions are rare and therefore not always easy to diagnose. We thank Dr Katrien Devreeze from the University Hospital of Gent, Belgium, for providing a case report of a patient with a Factor V inhibitor. Her article provides more insight into the symptoms, diagnosis, and treatment of an acquired Factor V inhibitor.

Finally in this issue we start a new rubric entitled "Literature Reviews." Herein we would like to highlight publications with interesting laboratory-related information. This issue contains two such articles. Enjoy your reading!

Focus Article:
Long-term Evaluation of EQA Results

Participation in an external quality assessment (EQA) programme is meant to provide a laboratory insight into their own performance in relation to other participants for the same parameter, assay methodology or method. This information shows a participant whether their performance is satisfactory or not. In the latter case it shows that there could be potential problems and that corrections should be made. In survey reports, laboratory performance is expressed as a Z-score, which indicates how many times the standard deviation for a particular result deviates from the consensus value. A Z-score between -2 and 2 represents a satisfactory performance. A Z-score between -3 and -2 or 2 and 3 indicates a questionable performance, while a Z-score lower than -3 or higher than 3 indicates an unsatisfactory performance. It is important that each participant evaluates their performance immediately after the receipt of the survey report. It is also important that results of a particular survey are evaluated from the perspective of previous surveys. One unsatisfactory Z-score does not always mean that corrective actions are needed. Such a Z-score could occur occasionally, e.g. as an error during the reconstitution of a sample.

Long-term evaluation

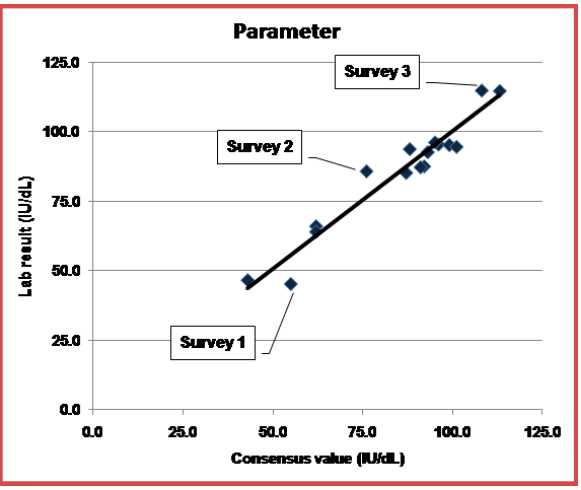
In addition to the standard evaluation of EQA results mentioned above, evaluation of EQA results over a prolonged period of time is also very important. In general, laboratory tests are performed to diagnose, screen, or monitor patients. Laboratory test results are compared to reference intervals or cut-off levels. Because these numbers are used over a prolonged period of time it is important that test performance is stable over that period. If not stable, misinterpretation of a test result may occur. Stable performance of a laboratory test is also important in the case of monitoring a patient for the effect of treatment, e.g. Factor VIII in the case of a haemophilia A patient. Measured variation in Factor VIII levels should not be primarily caused by analytical variation. Therefore, quality management in the laboratory requires a system to evaluate the quality of test performance over a prolonged period of time. The test results of an EQA programme are

extremely useful for establishing long-term analytical performance. To assess the long-term analytical performance for a particular test performed by an individual laboratory on the basis of data provided to an EQA programme, ECAT has designed a linear regression model by comparing the laboratory data with the consensus value of a survey (1). This model allows us to assess the long-term within-laboratory analytical coefficient of variation (LCVa), which here represents imprecision, as well as bias.

Briefly, for each participant linear regression is applied using the consensus values of each survey as the denominator (independent variable) and the corresponding laboratory values as the numerator (dependent variable). An example is given in Figure 1.

Figure 1

Example of a Linear Regression Model



The slope and variability of the regression line, the mean and the standard error of the consensus values as well as the mean value of the laboratory results are calculated. The formula is as follows:

$$\text{Bias} = B = \frac{\sqrt{\frac{n-1}{n} \bullet (b-1)^2 \bullet s_x^2 + (\bar{Y} - \bar{X})^2}}{\bar{X}} \bullet 100\%$$

$$\text{Imprecision} = LCV_a = \frac{(s_{y|x} / b)}{\bar{X}} \bullet 100\%$$

Where (X) is the consensus value and ($\dot{x}$) is the mean value for X; (sx) is the standard error of (X); (Y) is the laboratory value and ($\bar{Y}$) is the mean value for Y; (b) is the slope and (sy|x) is the variability of the regression line, which is calculated on the basis of the least-square method. The number of laboratory results included is expressed by (n).

Evaluation by participants

To support participants in using this long-term evaluation model the ECAT has prepared an Excel application for the calculation of the long-term imprecision and bias (see fig.2)

With this Excel tool a participant can easily perform the long-term evaluation. This tool provides the opportunity to add results and corresponding consensus values from 12 different EQA samples. If one sample per survey is distributed a period of 3 years can be evaluated. If 2 samples per survey are distributed a period of 1.5 years can be evaluated. Reliable regression analysis can only be performed when at least 8 results are included in the evaluation. Furthermore, it should also be realised that there must be a sufficient range in the concentration of the analyte in the samples included in the evaluation. After entering lab results and corresponding consensus values the LCVa and bias are automatically calculated. It should be noted that this evaluation can be done either with the use of the consensus value of the total group of participants or with the use of the consensus values on the level of the assay type and method. When occcasionally a survey result is identified as unsatisfactory (Z-score <-3 or Z-score > 3), this result should not be included in the long-term evaluation. This may affect the evaluation significantly. However, when a participant frequently presents outlier results, it should be realised that a systematic deviation from the consensus value seems to occur, represented by a high bias. In this case the laboratory should carefully evaluate the cause of the deviation.

Evaluation Example

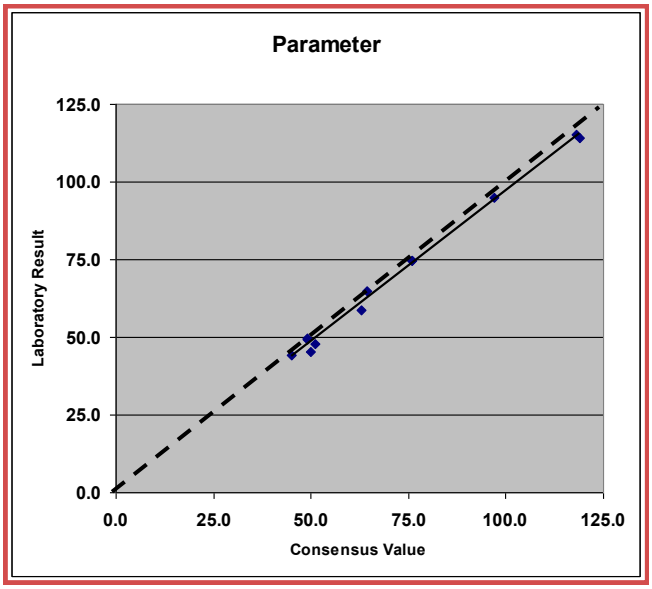
The following is an example of how to use this long-term evaluation model using antithrombin results from a fictitious participant. The results of 12 different surveys, corresponding to a 3-year period, are included. Consensus values for

Figure 2 Example of Excel Tool for Calculating Long-term Imprecision & Bias

Exercise	X	Y
	Consensus Result	Lab Result
1	65.0	64.5
2	45.3	50.0
3	115.3	118.0
4	49.3	49.0
5	74.8	76.0
6	114.1	119.0
7	49.6	49.0
8	74.5	76.0
9	94.9	97.0
10	47.9	51.0
11	44.2	45.0
12	58.8	63.0

Long-Term CVanalytical = 2.7%

Bias = 3.0%



these surveys varied between 45 and 115 IU/dL. The table in Figure 3 shows lab results and corresponding consensus values. In this example consensus values from the total group of participants were used because no significant difference between assay types used (anti-IIa and anti-Xa) could be observed.

Application of the long-term evaluation model gives the following results:

The long-term analytical coefficient of variation (LCVa) is 5.4% while the long-term bias is 2.9%. The regression analysis is graphically shown in Figure 3. It can be seen that the laboratory regression line is close to the line of identity (dashed line).

Excel application available on website

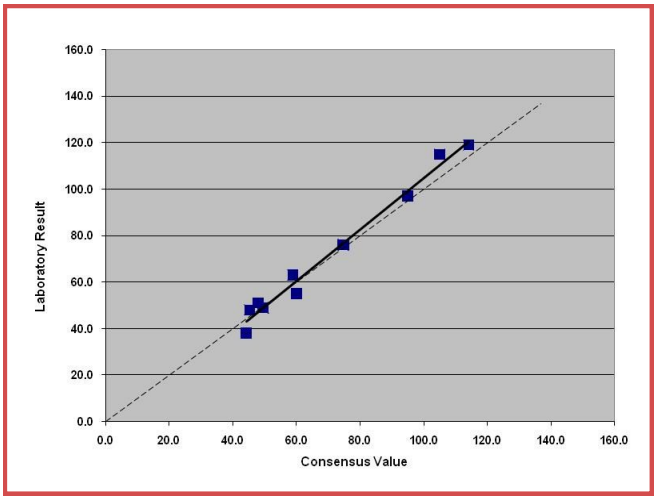
The Excel application explained above is now available at the ECAT website. Go to the member section in the main menu, log-in, and select "Long-term". You can download the Excel file and use it in your own laboratory for the long-term evaluation of EQA results. Before using this Excel application please take note of the instructions that can also be downloaded from the ECAT website.

Reference

Meijer P, et al. Long-Term Analytical Performance of Hemostasis Field Methods as Assessed by Evaluation of the Results of an External Quality Assessment Program for Antithrombin. Clin Chem 2002;48:1011 – 15.

Figure 3 Long-term Evaluation of Antithrombin Results of a fictitious participant

Exercise	X	Y
	(Cons. Value)	(Lab Result)
1	60.0	55.0
2	45.3	48.0
3	105.0	115.0
4	49.3	49.0
5	74.8	76.0
6	114.1	119.0
7	49.6	49.0
8	74.5	76.0
9	94.9	97.0
10	47.9	51.0
11	44.2	38.0
12	58.8	63.0



CLOT-ED
Coagulation Lysis Or Thrombosis

ECAT Information:
Algorithm A, a New Statistical Approach for the Evaluation of Survey Results

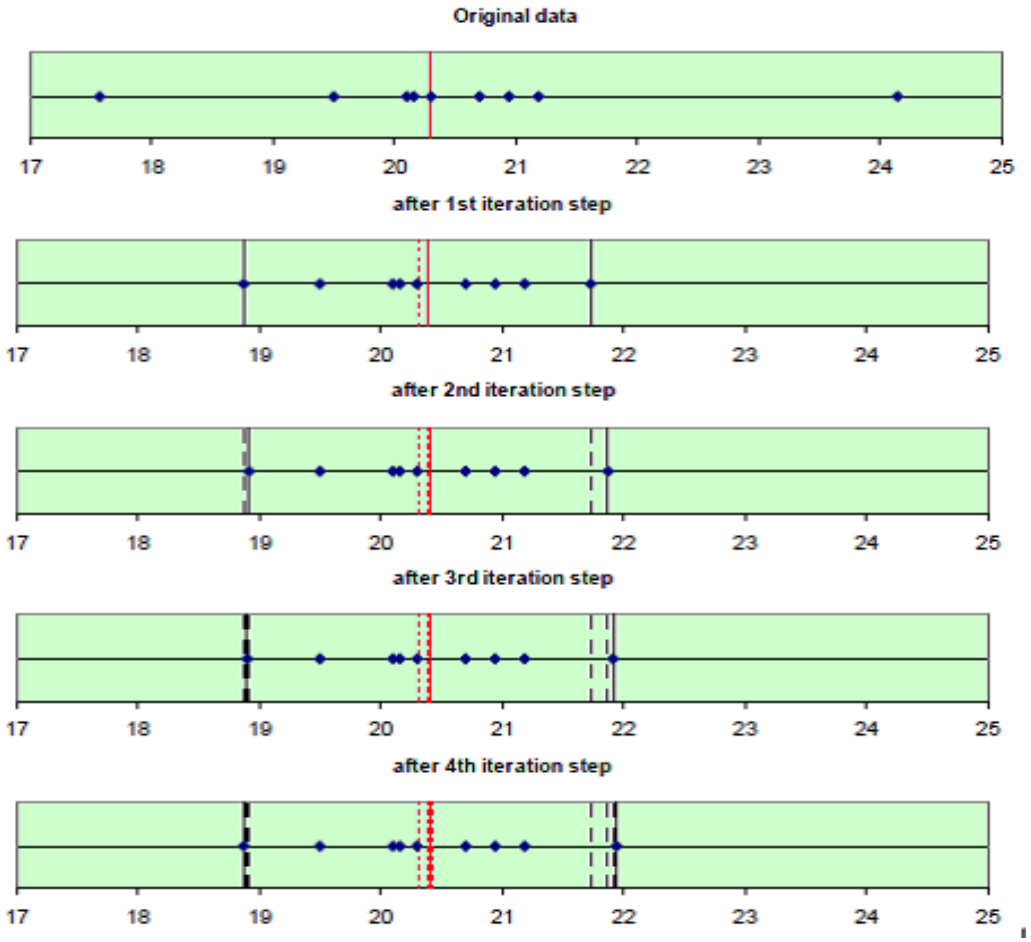
Introduction

Exercise results, as reported by participants, are subject to statistical evaluation. In general, the mean value, coefficient of variation, and the range are calculated. Because the calculated mean value is considered to represent the "true" value of all results reported (= consensus value), it is important that the calculation of this mean value is not influenced by so-called outliers. Outliers are results that do not belong to the normal distribution of reported results. Previously ECAT had used the 3-standard deviation rule for the exclusion of outliers. Briefly, from the entire distribution the mean value and standard deviation (SD) were calculated. All results outside the range of the mean value ± 3 times the standard deviation were removed from the data set. From this "outlier-free" data set the mean and SD were again calculated. These numbers were used in the report form. Critical for this approach is the assumption that the data set is normally distributed. However this is not always the case. It is therefore important to use a statistical approach that is independent from the distribution of results and properly excludes outliers for the calculation of the mean value and SD. This can be done by so-called robust statistics. Because several robust statistical approaches are described in the literature, ECAT has chosen to use Algorithm A. Algorithm A is indicated for evaluating data from external quality assessment (EQA) programmes when no assigned value for a parameter is available and the mean exercise value is considered to be the consensus value (ISO standards 17043 and 13529). This is the case with the ECAT EQA programme.

Algorithm A

Algorithm A is mainly based on the robust statistical model of Hampel. From the original data set the initial mean value (x*) and SD (s*) are calculated. The initial value for x* is the median and as initial value for s* the median absolute deviation (MAD) is calculated. The MAD is defined as $s^* = 1.483 \times \text{median} |x_i - x^*|$. In other words, for each value in the data set, the absolute deviation of the initial mean value (x*) is calculated. From this set of deviations the median is taken and multiplied by 1.483. This value is defined as the initial SD. Then limits for the distribution of the data set are calculated. These limits are defined as $x^* \pm \delta$, where $\delta = 1.5 \times s^*$. If any value of the data set is outside these limits this value is transformed to the value of the limit. From this new data set a new x* and s* are calculated, where s* is defined as $s^* = 1.134 \times \sqrt{\sum(x_i'' - x^*)^2/(p-1)}$. [xi" = values from the transformed data set, p = number of results]. With this new x* and s* new limits (δ) are calculated. These news limits are applied to the original data set, results outside the limits are transformed to the limit values and new x* and s* are calculated. This procedure is repeated until the process converges. Convergence may be assumed when there is no change from any one iteration to the next in the third significant figure of the SD or of the equivalent figure of the mean value. The final mean value obtained and the standard deviation are used for the calculation of the between-laboratory coefficient of variation and the Z-score. The Z-score of an individual result is calculated on the basis of the value in the original data set. An example of how Algorithm A is used is given in Figure 1.

Figure 1 Example of Algorithm A Applied to a Data Set with 4 Iteration Steps
(Example from a presentation by Dr Koch, University of Stuttgart, Germany, given in Sibiu, Romania in 2009)



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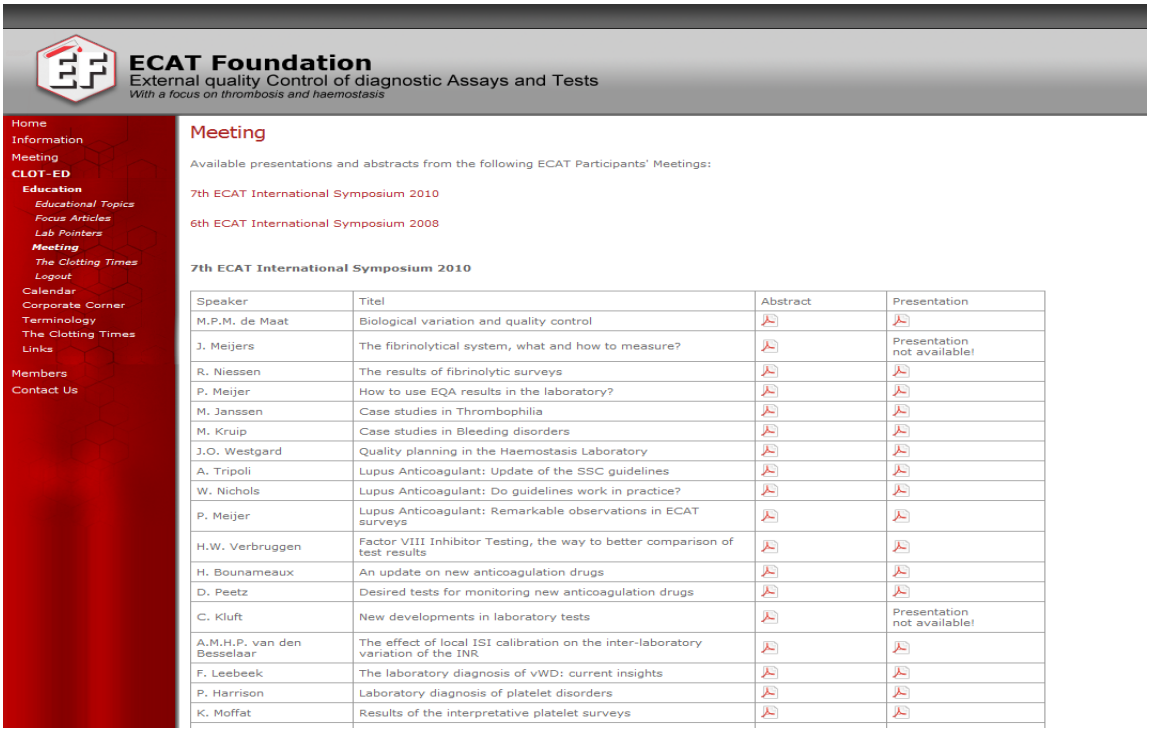
New Feature on CLOT-ED Website: "Meeting"

The ECAT Foundation organises a biennial meeting for ECAT participants. About 200 participants join this interesting and informative meeting with an outstanding program and speakers. At every meeting there have been requests to access meeting materials. This February the ECAT Foundation introduced a new item "Meeting" at the Educational part of the CLOT-ED website. Under this item "Meeting" you can find all available abstracts and presentations of the ECAT Participants meeting in 2008 and 2010. It is an easy way to get informed about the content of the meetings and to read information that is of interest to you. The goal is to give laboratory professionals an easy tool to expand their knowledge. When on the ECAT site, be sure to take some time to read the presentations.



ECAT Foundation
External quality Control of diagnostic Assays and Tests
With a focus on thrombosis and haemostasis

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Available presentations and abstracts from the following ECAT Participants' Meetings:

7th ECAT International Symposium 2010

6th ECAT International Symposium 2008

7th ECAT International Symposium 2010

Speaker	Titel	Abstract	Presentation
M.P.M. de Maat	Biological variation and quality control		
J. Meijers	The fibrinolytical system, what and how to measure?		Presentation not available!
R. Niessen	The results of fibrinolytic surveys		
P. Meijer	How to use EQA results in the laboratory?		
M. Janssen	Case studies in Thrombophilia		
M. Kruip	Case studies in Bleeding disorders		
J.O. Westgard	Quality planning in the Haemostasis Laboratory		
A. Tripoli	Lupus Anticoagulant: Update of the SSC guidelines		
W. Nichols	Lupus Anticoagulant: Do guidelines work in practice?		
P. Meijer	Lupus Anticoagulant: Remarkable observations in ECAT surveys		
H.W. Verbruggen	Factor VIII Inhibitor Testing, the way to better comparison of test results		
H. Bounameaux	An update on new anticoagulation drugs		
D. Peetz	Desired tests for monitoring new anticoagulation drugs		
C. Kluft	New developments in laboratory tests		Presentation not available!
A.M.H.P. van den Besselaar	The effect of local ISI calibration on the inter-laboratory variation of the INR		
F. Leebeek	The laboratory diagnosis of vWD: current insights		
P. Harrison	Laboratory diagnosis of platelet disorders		
K. Moffat	Results of the interpretative platelet surveys		

Case Report: Factor V Inhibitor

Katrien Devreese, MD, PhD

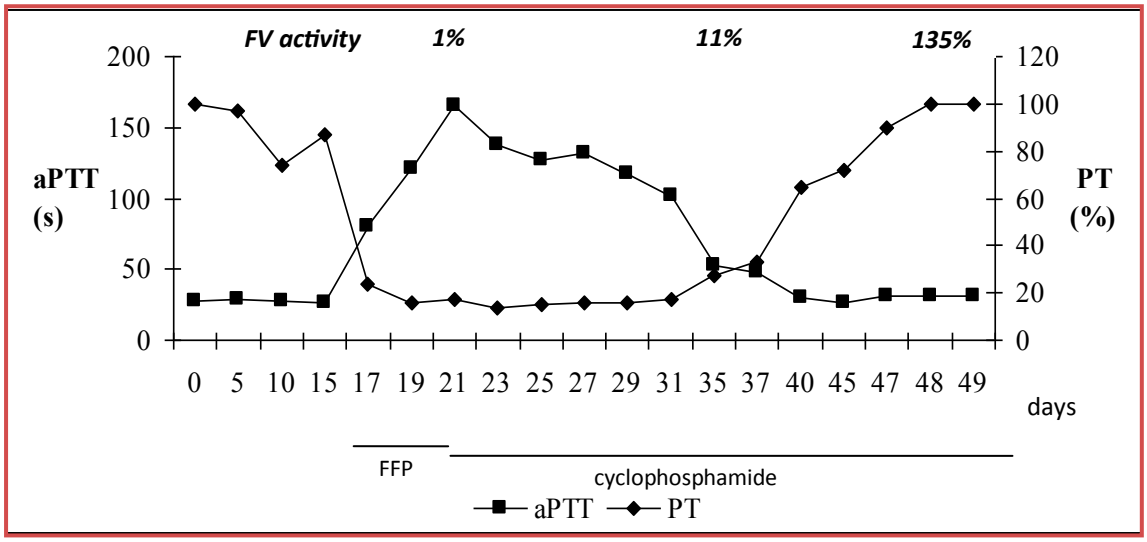
Coagulation Laboratory, University Hospital Ghent, Ghent, Belgium

Case Report

A 72-year-old man was admitted to the emergency room with a left hemiparesis, facial paresis and high blood pressure. On a brain CT scan, an intraparenchymal bleeding with intraventricular haemorrhage was viewed. At that moment, screening coagulation tests (activated partial thromboplastin time, [APTT] and prothrombin time, [PT]) were normal and a ventricular drain was placed on the day of admission. A few days after surgery, he suffered from a spontaneous intraparenchymal bleeding of the lung of unknown origin. One week after surgery, ciprofloxacin and a beta lactam antibiotic were administrated because of an upper airway infection. Two weeks after neurosurgical intervention, APTT and PT prolonged progressively. On the 21st day after admission to the hospital

the PT was 17% (reference value 100 – 120%) and the APTT was 164.7 s (reference interval 25.0 – 36.0 seconds). At that moment, the intracranial and intrapulmonal bleeding were already resolved and no other bleeding symptoms occurred. In the diagnostic work-up of a prolonged APTT and PT, we performed mixing studies of patient plasma (PP) and normal pooled plasma (NPP). After mixing PP with NPP in a 1:1 part, the APTT and PT remained prolonged. Specific coagulation factor activities were determined in a one-stage PT or APTT clotting assay, with a pre-dilution of 1:10 PP with NPP. The activity of all clotting factors was reduced (Factor II 50%, Factor V 2%, Factor VII 10%, Factor VIII < 1%, Factor IX < 1%, Factor X 27%, Factor XI < 1% and Factor XII < 1%). Coagulation factor activities were remeasured in a predilution of 1:100 PP with NPP and revealed a recovery of all clotting factor activities, except the activity of Factor V (FV) at 1%. These findings suggested presence of a specific FV inhibitor. The Bethesda assay revealed a FV inhibitor titer of 48 BU/ml. Investigations for the presence of inhibitors also included testing for the lupus anticoagulant (LA). Results of the screening, mixing and confirmation tests were not consistent with the presence of LA. Two weeks after discovery of the inhibitor, FV level was 11% with an inhibitor titer of 0.75 BU/ml. One month after diagnosis of the inhibitor, the activity of FV was 135% and the APTT and PT were normalized. The course of findings in the coagulation tests (APTT, PT and FV activity) during hospitalization is shown in the figure.

Figure 1 Evolution of Coagulation Tests During Hospitalization



Course of findings for PT and APTT during hospitalization. The progressive prolongation of PT and APTT started on day 14 and on day 40 the APTT and PT were again normal. Above the PT and APTT, values for FV activity on day 21, 35 and 48 are given. At the bottom of the figure the period of FFP substitution and immunosuppressive treatment is shown.

Even though the patient had no bleeding signs when the FV inhibitor was discovered, he was first treated with fresh frozen plasma (FFP) and afterwards with a combination of corticosteroids and cyclophosphamide (at the bottom of the figure the period of FFP substitution and immunosuppressive treatment is shown). Immunosuppressive treatment was maintained for 1 month after inhibitor elimination.

Discussion

Acquired factor V inhibitors are rare and clinical symptoms are quite variable. Bleeding is the leading symptom but some patients are asymptomatic. Several diseases or conditions are associated with factor V inhibitors. Various treatments have been attempted but randomized or prospective trials are not available.

Specific coagulation factor inhibitors are an infrequent occurrence in haemostasis.

Coagulation factor inhibitors are antibodies that bind to specific coagulation factors and promote their degradation or block their participation in normal haemostasis. Generally, there are two major forms of coagulation factor inhibitors: (i) those developing in individuals deficient in a specific factor after exposure to that exogenous factor, and (ii) those developing in otherwise normal individuals because of some auto-immune or allo-immune event. The first group, ecloses, by far the most common, inhibitors directed against Factor VIII (FVIII) in haemophilia patients. The second type of FVIII inhibitors generally develop in the elderly non-haemophiliac patient through a range of potential mechanisms. Inhibitors to FV also fall within the second group of inhibitors.

Inhibitors directed against FV may occur at all ages and clinical symptoms vary to a great extent. The clinical manifestations of FV inhibitors can range from an asymptomatic laboratory abnormality, as seen in our patient, to clinically severe bleeding. FV inhibitors may develop as autoantibodies, generally after surgical procedures, blood transfusions, or antibiotic administration.

In a few cases there is an association to a malignant or autoimmune disease. These autoantibodies show usually a low titer and are transient. Iatrogenic FV alloantibodies may develop after exposure to bovine thrombin or exogenous human FV. Thrombin preparations are frequently used as topical haemostatic agents in vascular, orthopaedic and neurosurgical procedures and often contain additional bovine proteins, such as FV.

In our patient no bovine thrombin use was documented and post-operatively there was no need for transfusion. Several special features of the patient could although be pointed regarding to the development of the FV inhibitor. In the first place, during development of the FV inhibitor the patient suffered from a pulmonary infection, which could trigger inhibitor development. Secondly, the administration of both ciprofloxacin and a beta lactam antibiotic (started ten days before start of prolongation of APTT and PT) could also cause inhibitor development, as described previously in the literature. A third possibility could be the post-operative status of the patient. In a minority of cases, a FV inhibitor developed after surgery, without a documented exposure to bovine proteins. It should be considered that the vast majority of patients with post-operative FV inhibitors had a concurrent treatment with blood transfusions or antibiotics, which can induce immune reactions. It is possible that a combination of several factors, or other so far unknown factors, may be responsible for the development of post-operative FV inhibitors.

Treatment of acquired FV inhibitors remains uncertain. The mainstay of therapy for FV inhibitors is immunosuppression. Several treatments have been reported, including plasmapheresis, platelet infusion, immunoadsorption, corticosteroid, cyclophosphamide, and high-dose immunoglobulin infusions. Administration of recombinant activated factor VII (rFVIIa, NovoSeven®) could also be considered in treatment of bleeding patients. From a therapeutic point of view there is general consensus that asymptomatic patients should not be treated regardless of their inhibitor titre and residual FV plasma levels.

In the present case, there was no evidence for bleeding at the moment the FV inhibitor existed. Even though, regarding the history of bleeding, our patient was first treated with FFP and afterwards with a combination of corticosteroids and cyclophosphamide. There was no improvement of the clotting profile after treatment with FFP, which could be expected considering the presence of a high-titre FV inhibitor. In conclusion, this report describes a patient with development of an inhibitor against coagulation FV. Remarkable is the fact that no bleeding tendency occurred during the period the FV inhibitor could be demonstrated. After a few weeks the FV inhibitor disappeared with normalization of the coagulation parameters. Several concomitant conditions were present in this patient and it may thus be speculated that the FV inhibitor may have developed as a result of the coincidence of several factors.

This case report is based on the publication: Leus B, Devreese K, Van den Bossche J, Malfait R. Factor V inhibitor: case report. Blood Coagul Fibrinolysis 2006;17:585-7.)

Literature Review:
The Responsiveness of Different APTT Reagents to Mild Factor VIII, IX and XI Deficiencies

It has been reported that carriers of haemophilia with clotting factor levels between 41 and 60 IU/dL may suffer from significant bleeding (1). Because mild haemophilia is defined as a clotting factor level between 5 and 40 IU/dL levels above 40 IU/dL are frequently classified as borderline or normal. Because these milder factor deficiencies may be associated with a haemorrhagic risk it is important to evaluate APTT reagents for their sensitivity to these borderline deficiencies. Recently Bowyer et al published a study on the suitability of four different APTT reagents for use as a screening test to detect mild deficiencies of the clotting factors VIII, IX ad XI (2). The APTT reagents under investigation were Actin FS (Siemens), Synthasil (IL), STA-APTT (Stago), and Dapttin (Technoclone). By mixing plasma with normal factor levels with plasma deficient for Factor VIII, IX or XI, respectively, a concentration range between 10 and 100 IU/dL was obtained. The factor activity corresponding with an APTT that falls outside the reference intervale for that particular APTT reagent was assessed as the responsiveness in IU/dL for that particular reagent. The reference intervals for the four reagents were locally assessed.

The table below shows the responsiveness in IU/dL of normal plasma to the clotting factors VIII, IX and XI. Clotting factor levels above the ones shown in the table are not recognised as abnormal with that particular reagent.

	Responsiveness (IU/dl)		
APTT Reagent	FVIII	FIX	FXI
Synthasil	54	38.5	57.5
Actin FS	67.5	52.5	70
Dapttin	33.5	9.5	14
STA APTT	44	30.5	26

From this data it is clear that very mild deficiencies (factor level > 40 IU/dL) for the clotting factors VIII, IX and XI can only be observed with Actin FS. Synthasil will miss these reduced factor levels for FIX, while STA APTT and Dapttin are insensitive to almost all mild deficiencies of these clotting factors.

The authors concluded that both Synthasil and Actin FS are acceptable reagents for screening for reduced factors VIII, IX and XI and the number of mildly reduced factors not diagnosed will be limited. This publication highlights the need for a thorough assessment of the responsiveness of an APTT reagent, used for screening in the laboratory, in detecting these mild deficiencies.

For further details see reference 2.

References

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CLOT-ED™ Coagulation Lysis Or Thrombosis

Non-parallelism in One-stage Coagulation Factor Assay is a Phenomenon of the Lupus Anticoagulant and not of Individual Factor Inhibitors

In the case of a prolonged clotting test (APTT or PT) further testing is needed to investigate whether this is caused by an individual clotting factor deficiency or a non-specific inhibitor. Low factor activities in the presence of an inhibitor can only be reliably measured when using a Parallel Line Bioassay (1-3). In the case of parallelism the clotting factor measurements are reliable. However, in the case of non-parallelism factor activity results should be regarded as incorrect. The main reason for this non-parallelism is the presence of a non-specific antibody, such as a lupus anticoagulant (LA) or a specific factor inhibitor.

In the study published by Ruinemans and colleagues (4), they investigated whether LA and factor VIII (FVIII) and factor IX (FIX) inhibitors cause non-parallelism in a one-stage clotting assay. The authors studied plasmas of patients with low and high titre LA, low and high titre FVIII type I antibodies (allo-antibodies), low and high titre FVIII type II (auto-antibodies) and plasma enriched with FIX antibodies. Non-parallelism with a reference plasma was only observed in the high-titre LA positive sample with LA-sensitive APTT reagents (PTT-LA from Stago and APTT-SP from IL) and not with a LA-insensitive reagent (Actin from Siemens). The samples containing clotting factor-specific antibodies showed good parallelism with the reference plasma as did the low-titre LA positive plasma. This study clearly showed that non-parallelism can only be observed in samples with a high-titre LA and with the use of a LA-sensitive APTT reagents. The question was therefore raised as to whether the previous statement that factor assays should be performed in serial dilutions to exclude the presence of an inhibitor (1) was still valid.

The authors therefore proposed an improved algorithm for the measurement of clotting factors (4, Fig. 1D). In summary, the authors proposed the analysis of a sample at one appropriate dilution. When the factor activity is below the reference interval and a LA-sensitive reagent is used, additional dilutions can be performed to exclude the presence of high-titre LA. When a LA is suspected, confirmation should be performed according to the international guideline for LA testing (5). In the case of parallelism the existence of factor-specific antibodies cannot be excluded and a 1:1 mixing study with normal pooled plasma should be performed. Lack of normalisation indicates the presence of a factor-specific inhibitor and an inhibitor assay should be performed for further identification and quantification (6). It should be realized that in the case of normalization in the mixing study type II inhibitors cannot be completely excluded.

The authors concluded that the recommended application of serial dilutions for the performance of the one-stage clotting assay is only valuable where a LA-sensitive reagent is used to exclude the presence of a high-titre Lupus anticoagulant or lupus-like inhibitors. Screening for individual clotting factor inhibitors should be performed by mixing studies with normal pooled plasma, while the quantification of inhibitors should be performed by specific factor inhibitor assays.

The results of this interesting study may help laboratories in the further improvement of their algorithm for the detection of clotting factor levels, LA and factor-specific antibodies. For further details about this publication see reference 4.

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3. Kirkwood TB, et al. Biometric principles in clotting and clot lysis assays. Clin Lab Haematol 1980;2:155 – 67.

4. Ruinemans-Koerts J, et al. Non-parallelism in the one-stage coagulation factor assay is a phenomenon of lupus anticoagulants and not of individual factor inhibitors. Thromb Haemost 2010;104:1080-2.

5. Pengo V, et al. Update of the guidelines for lupus anticoagulant detection. Subcommittee on Lupus Anticoagulant/Antiphospholipid Antibody of the Scientific and Standardisation Committee of the International Society on Thrombosis and Haemostasis. J Thromb Haemost 2009;7:1737-40.

6. Verbruggen B, et al. The Nijmegen modification of the Bethesda assay for FVIII:C inhibitors: improved specificity and reliability. Thromb Haemost 1995;73:247–51.

Announcements

Questionnaires:

Courses and workshops:

The ECAT Foundation plans to organise educational courses and workshops related to quality issues and/or practical laboratory issues in the field of thrombosis and haemostasis. We are highly interested in the opinion of our members and would appreciate if you could complete this questionnaire. It takes about 5 – 10 minutes. You can find the questionnaire at www.ecat.nl in the member section under the item on questionnaires. Please complete this questionnaire before July 15, 2011.

Lupus Anticoagulant:

We frequently observe a heterogeneous pattern in the interpretation of laboratory results for (weakly) positive lupus antigoaculant (LA) samples. ECAT would like to investigate plausible causes for this problem and come up, if possible, with solutions. Therefore, within a few weeks a questionnaire will be available for participants of the LA module. In this questionnaire we would like to collect information about how laboratoires interpret LA test results (e.g. reference intervals, cut-off values, etc.). Our aim is to prepare an overview of this information, discuss the findings with an expert panel on LA testing and create recommendations for the interpretation of LA test results. This questionnaire is also available in the member section of the ECAT website. Please complete this questionnaire before August 1, 2011. Completion of this questionnaire takes about 10 – 15 minutes. Your contribution would be highly appreciated.

Anti Xa Module:

At the beginning of 2011 the ECAT Foundation started a new Anti-Xa Heparin monitoring module in our EQA programme. The survey will be sent out 4 times a year. At present there are approximately 75 participants for the Unfractionated Heparin anti-Xa module and approximately 120 participants for the Low Molecular Weight Heparin anti-Xa module. If you are interested and want to participate or need more information, please contact the ECAT Foundation at info@ecat.nl.

Corporate Corner:

We have a new participant in the Corporate Corner of our educational website, CLOT-ED. We welcome Multiplate! Via the Corporate Corner you have a direct link to several companies and will find highlights of several products that are newly available.

CLOT-ED™
Coagulation Lysis Or Thrombosis