ANTIPHOSPHOLIPID SYNDROME:

2024 UPDATE

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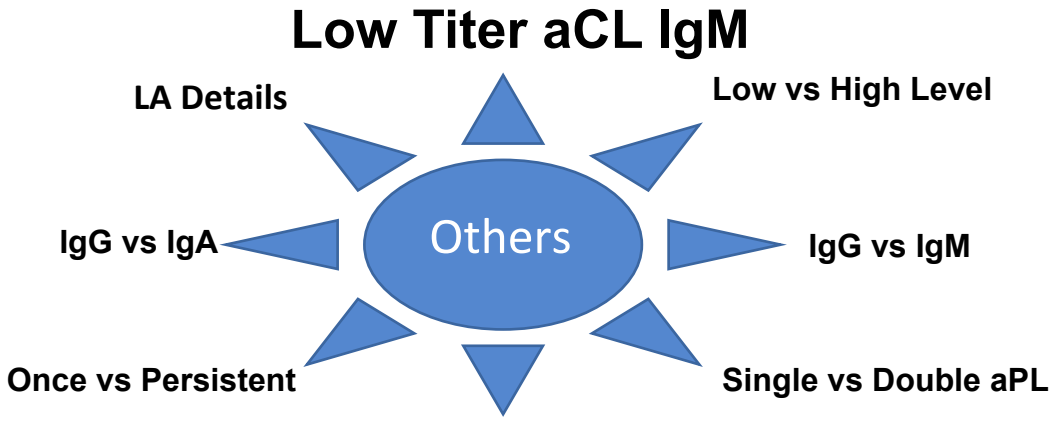
DISCUSSION POINTS

- **Antiphospholipid Syndrome Definition**
  - **Antiphospholipid Antibody Tests & Profile**
  - **Diagnosis & Classification**
- **Thrombotic APS**
  - **Primary & Secondary Thrombosis Prevention**
- **Obstetric APS**
- **Catastrophic – Microvascular - Non-Thrombotic APS**
  - **The Role of Immunosuppression in APS**

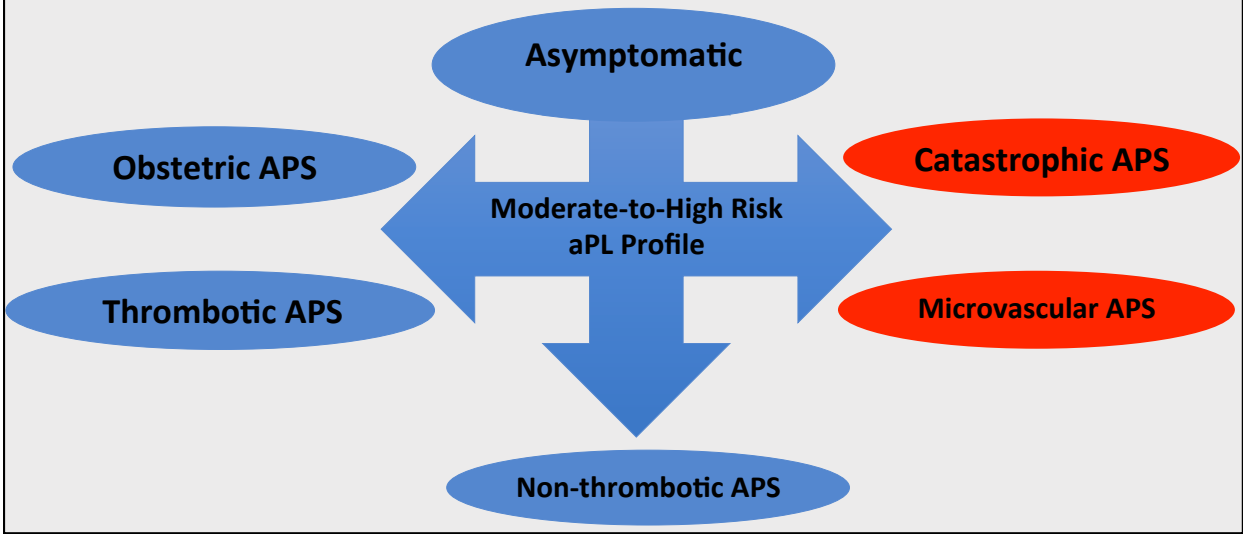
WHAT IS APS?

- **Direction of Association:**
- aPL - **Bystander**
  - Low titer aCL - Severe sepsis (& DVT)
- aPL - **Risk factor** & **Potential contributor**
  - Triple aPL – Provoked DVT after a major cancer surgery
- aPL - **Cause**
  - Triple aPL - Unprovoked DVT & "aPL-nephropathy" & Diffuse alveolar hemorrhage

WHAT ARE APL/APS TESTS?



CLINICAL PHENOTYPE

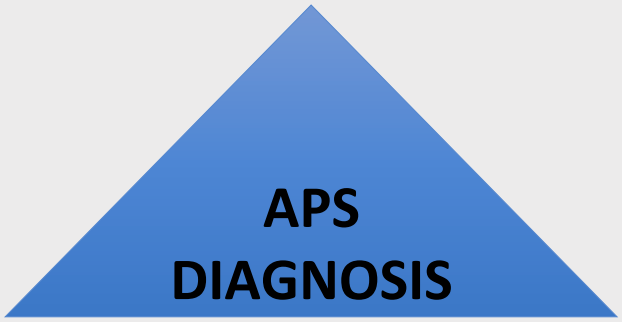


CLINICAL PHENOTYPE

Microvascular APS is a distinct subset from mechanistic, pathologic, and treatment perspectives

CLINICIAN'S ROLE

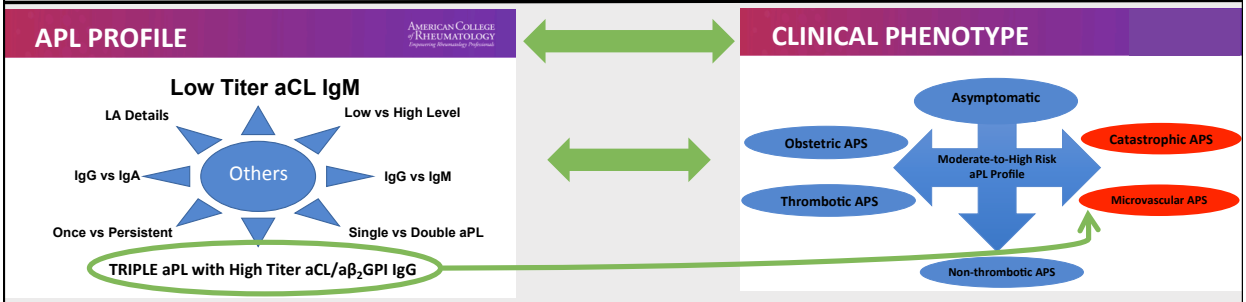
Clinical Profile



aPL Profile

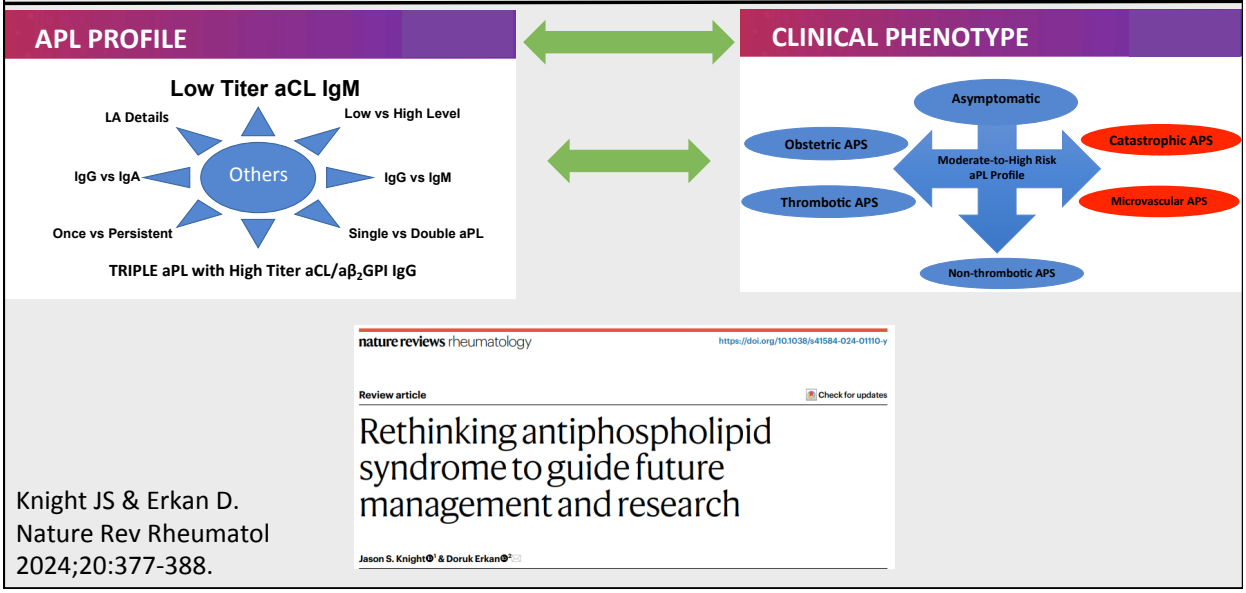
Other (Risk) Factors

RESEARCHER'S ROLE



- 66 yo F Thrombocytopenia + DAH
- 18 yo M Thrombocytopenia + Valve Disease + Stroke
- 62 yo F aPL-Nephropathy + Livedoid Vasculopathy

RESEARCHER'S ROLE



Knight JS & Erkan D. Nature Rev Rheumatol 2024;20:377-388.

nature reviews rheumatology

https://doi.org/10.1038/s41584-024-01110-y

Review article

Check for updates

Rethinking antiphospholipid syndrome to guide future management and research

Jason S. Knight & Doruk Erkan

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Antiphospholipid Antibody Tests & Profile

"Antiphospholipid Antibody Positive"

- Type
- Isotype
- Titer
- Persistent
- Combination
- Most Recent Test

"Lupus Anticoagulant Test Positive"

- Reliable Laboratory
- Based on Guidelines
- On Anticoagulation
  - Type of anticoagulation
  - INR at the time of LA Test
- Correction Ratio
- History of ↑PTT
- History of False (+) RPR
- aCL/aβ_2GPI (+)

Antiphospholipid Antibody Tests & Profile

- Level 1
  - Persistent Triple aPL with LA & Moderate-to-high Level aCL and aβ_2GPI IgG
  - Persistent LA Only
- Level 2
  - Persistent Moderate-to-high Level aCL and/or aβ_2GPI IgG (LA negative)
  - Persistent Moderate-to-high Level aCL and/or aβ_2GPI IgM (LA negative)
- Level 3
  - Persistent low level aCL and/or aβ_2GPI IgG/M (LA negative)

Moderate-high: ≥40 ELISA Units - Low: 20-40 ELISA Units

Antiphospholipid Antibody Tests & Profile

BE AWARE:

- ELISA vs Automated Systems
  - *Meroni et al.* 2023 ACR/EULAR APS Classification Criteria Solid Phase-based aPL Domain: Collaborative Efforts to Harmonize ELISA and non-ELISA aPL Tests
    - In press
  - *Vandevelde et al.* Efforts to Harmonize ELISA and Non-ELISA Anticardiolipin and Anti-β2-glycoprotein-I Levels Based on ISTH SSC LA/aPL and APS ACTION International Multicenter Cohorts
    - ACR 24

APS | ACTION
ANTIPHOSPHOLIPID SYNDROME
ALLIANCE FOR CLINICAL TRIALS & INTERNATIONAL NETWORKING

ISTH™ International Society on Thrombosis and Haemostasis

Antiphospholipid Antibody Tests & Profile

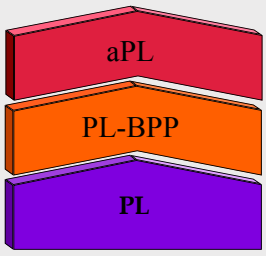
BE AWARE:

- Non-criteria aPL Tests (e.g., aPS/PT)

"Other" aPL Tests

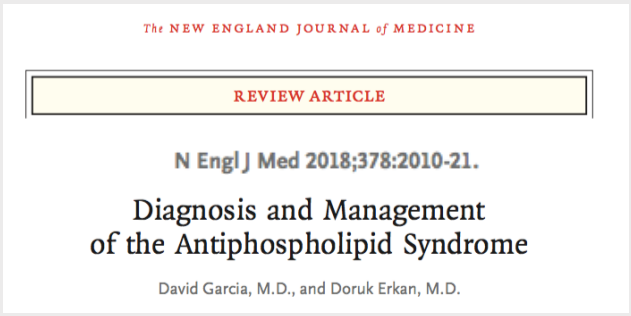
- ***Phosphatidylserine-dependent Antiprothrombin Antibodies***
- Antibodies to Domain I of β_2-Glycoprotein-I
- Antibodies to Domain IV-V of β_2-Glycoprotein-I
- IgA aCL and aβ_2GPI
- APhL Assay
- Antibodies to Factor Xa
- Annexin A5 Resistance Assay

References:
- Bertolaccini et al. Clinical and Prognostic Significance of Non-criteria antiphospholipid antibody tests. In: Antiphospholipid Syndrome – Current Research Highlights and Clinical Insights. Eds: Erkan D, Lockshin MD. Springer, 2017, p:171.



LA tests detect certain antibodies to β_2GPI and/or prothrombin of any isotype

Further Reading



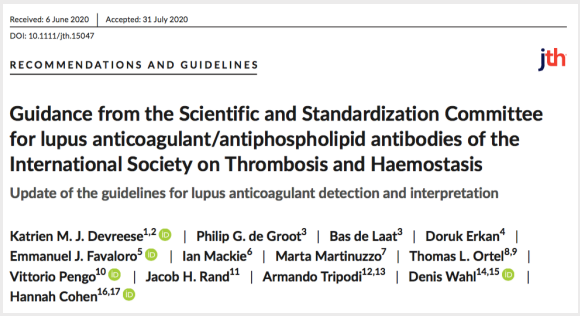
The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

N Engl J Med 2018;378:2010-21.

Diagnosis and Management of the Antiphospholipid Syndrome

David Garcia, M.D., and Doruk Erkan, M.D.



Received: 6 June 2020 | Accepted: 31 July 2020
DOI: 10.1111/jth.15047

RECOMMENDATIONS AND GUIDELINES

jth

Guidance from the Scientific and Standardization Committee for lupus anticoagulant/antiphospholipid antibodies of the International Society on Thrombosis and Haemostasis

Update of the guidelines for lupus anticoagulant detection and interpretation

Katrien M. J. Devreese[1,2] | Philip G. de Groot[3] | Bas de Laat[3] | Doruk Erkan[4] | Emmanuel J. Favaloro[5] | Ian Mackie[6] | Marta Martinuzzo[7] | Thomas L. Ortel[8,9] | Vittorio Pengo[10] | Jacob H. Rand[11] | Armando Tripodi[12,13] | Denis Wahl[14,15] | Hannah Cohen[16,17]

DISCUSSION POINTS

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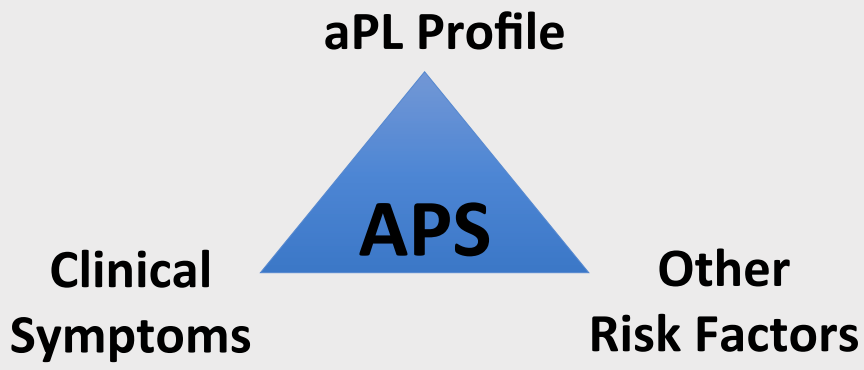
Antiphospholipid Syndrome Classification vs Diagnosis

	Classification Criteria	Diagnostic Criteria
Goal	Well defined study sample representative of the majority	All the patients including unusual presentations
Patients	Homogenous Group Not intended to capture the entire universe of possible patients but rather to capture the majority of patients who share key features (validation critical)	Heteregenous Group
Billing Reimbursement Impact	No (research only)	Yes
Treatment Impact	No (research only)	Yes

Aggarwal et al. Arthritis Care & Research 2015

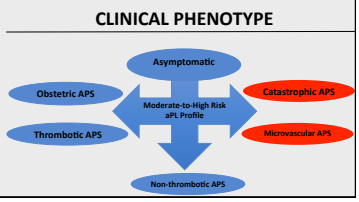
Antiphospholipid Syndrome Classification vs Diagnosis



+ Available clinical and laboratory tests, and
differential diagnoses pertaining to the epidemiology in a specific region

Antiphospholipid Syndrome Classification vs Diagnosis

- Confidence in APS diagnosis increases with:
  - Combination of aPL-related clinical events (e.g., thrombotic, obstetric, microvascular, and/or non-thrombotic)
  - When no additional co-morbidities (e.g., venous thromboembolism risk factors, cardiovascular risk factors [including age]) exist
  - For pregnancy morbidity, signs and symptoms of severe placental vascular problems (e.g., pre-eclampsia, placental insufficiency)



Antiphospholipid Syndrome Classification vs Diagnosis

- No APS Diagnostic Criteria
- Classification Criteria should not be used for diagnosis
  - Acceptable as a guide to prevent overdiagnosis or misdiagnosis

Revised Sapporo Classification Criteria

Vascular thrombosis:

- **Arterial, venous, or small vessel thrombosis, in any organ or tissue *and/or***

Pregnancy morbidity:

- **≥1 fetal deaths ≥ 10th week of gestation or**
- **≥1 premature births ≤ 34th week of gestation due to PEC, EC, or PI**
- **≥3 consecutive (pre) embryonic losses < 10th week of gestation**

AND

Laboratory Criteria:

- **Positive LA test present on ≥2 occasions, at least 12 w apart *and/or***
- **aCL IgG/M in medium/high titer, on ≥2 occasions, at least 12 w apart *and/or***
- **aβ_2GP-I IgG/M in medium/high titer, on ≥2 occasions, at least 12 w apart**

Miyakis et al. International consensus statement on an update of the classification criteria for definite APS. J Thromb Haemost 2006;4:295

Antiphospholipid Syndrome Classification vs Diagnosis

2023 ACR/EULAR Antiphospholipid Syndrome Classification Criteria

Medha Barbhaiya,[1*] Stephane Zuily,[2*] Ray Naden,[3†] Alison Hendry,[4] Florian Manneville,[5] Mary-Carmen Amigo,[6] Zahir Amoura,[7] Danieli Andrade,[8] Laura Andreoli,[9] Bahar Artim-Esen,[10] Tatsuya Atsumi,[11] Tadej Avcin,[12] Michael H. Belmont,[13] Maria Laura Bertolaccini,[14] D. Ware Branch,[15] Graziela Carvalheiras,[16] Alessandro Casini,[17] Ricard Cervera,[18] Hannah Cohen,[19] Nathalie Costedoat-Chalumeau,[20] Mark Crowther,[21] Guilherme de Jesus,[22] Aurelien Delluc,[23] Sheetal Desai,[24] Maria De Sancho,[25] Katrien M. Devreese,[26] Reyhan Diz-Kucukkaya,[27] Ali Duarte-Garcia,[28] Camille Frances,[29] David Garcia,[30] Jean-Christophe Gris,[31] Natasha Jordan,[32] Rebecca K. Leaf,[33] Nina Kello,[34] Jason S. Knight,[35] Carl Laskin,[36] Alfred I. Lee,[37] Kimberly Legault,[38] Steve R. Levine,[39] Roger A. Levy,[40] Maarten Limper,[41] Michael D. Lockshin,[1] Karoline Mayer-Pickel,[42] Jack Musial,[43] Pier Luigi Meroni,[44] Giovanni Orsolini,[45] Thomas L. Ortel,[46] Vittorio Pengo,[47] Michelle Petri,[48] Guillermo Pons-Estel,[49] Jose A. Gomez-Puerta,[50] Quentin Raimboug,[51] Robert Roubey,[52] Giovanni Sanna,[53] Surya V. Seshan,[54] Savino Sciascia,[55] Maria G. Tektonidou,[56] Angela Tincani,[10] Denis Wahl,[2] Rohan Willis,[57] Cecile Yelnik,[58] Catherine Zuily,[59] Francis Guillemin,[5] Karen Costenbader,[60] and Doruk Erkan,[1] on Behalf of the ACR/EULAR APS Classification Criteria Collaborators

Arthritis & Rheumatology
2023;75:1687-1702

2023 ACR/EULAR antiphospholipid syndrome classification criteria

Medha Barbhaiya,[1] Stephane Zuily,[2] Ray Naden,[3] Alison Hendry,[4] Florian Manneville,[5] Mary-Carmen Amigo,[6] Zahir Amoura,[7] Danieli Andrade,[8] Laura Andreoli,[9] Bahar Artim-Esen,[10] Tatsuya Atsumi,[11] Tadej Avcin,[12] Michael H Belmont,[13] Maria Laura Bertolaccini,[14] D Ware Branch,[15] Graziela Carvalheiras,[16] Alessandro Casini,[17] Ricard Cervera,[18] Hannah Cohen,[19] Nathalie Costedoat-Chalumeau,[20] Mark Crowther,[21] Guilherme de Jesús,[22] Aurelien Delluc,[23] Sheetal Desai,[24] Maria De Sancho,[25] Katrien M Devreese,[26,27] Reyhan Diz-Kucukkaya,[28] Ali Duarte-García,[29] Camille Frances,[30] David Garcia,[31] Jean-Christophe Gris,[32] Natasha Jordan,[33] Rebecca K Leaf,[34] Nina Kello,[35] Jason S Knight,[36] Carl Laskin,[37] Alfred I Lee,[38] Kimberly Legault,[39] Steve R Levine,[40] Roger A Levy,[41,42] Maarten Limper,[43] Michael D Lockshin,[1] Karoline Mayer-Pickel,[44] Jack Musial,[45] Pier Luigi Meroni,[46] Giovanni Orsolini,[47] Thomas L Ortel,[48] Vittorio Pengo,[49] Michelle Petri,[50] Guillermo Pons-Estel,[51] Jose A Gomez-Puerta,[52] Quentin Raimboug,[53] Robert Roubey,[54] Giovanni Sanna,[55] Surya V Seshan,[56] Savino Sciascia,[57,58] Maria G Tektonidou,[59] Angela Tincani,[9] Denis Wahl,[2] Rohan Willis,[60] Cécile Yelnik,[61] Catherine Zuily,[62] Francis Guillemin,[5] Karen Costenbader,[63] Doruk Erkan,[1] on Behalf of the ACR/EULAR APS Classification Criteria Collaborators

Annals of Rheumatic Disease
2023;82:1258-1270

2023 ACR/EULAR APS Classification Criteria

D1. Macrovascular : Venous Thromboembolism (VTE)	Wt
• VTE with high VTE risk profile	1
• VTE without high VTE risk profile	3

D2. Macrovascular: Arterial Thrombosis (AT)	Wt
• AT with high-risk CVD profile	2
• AT without high-risk CVD profile	4

D3. Microvascular: Suspected	Wt
• Livedo racemosa (exam)	2
• Livedoid vasculopathy lesions (exam)	2
• Acute/chronic aPL-nephropathy (exam/lab)	2
• Pulmonary hemorrhage (symptom & imaging)	2

D3. Microvascular: Established	Wt
• Livedoid vasculopathy (pathology)	5
• Acute/chronic aPL-nephropathy (pathology)	5
• Pulmonary hemorrhage (BAL/pathology)	5
• Myocardial disease (imaging/pathology)	5
• Adrenal hemorrhage (imaging/pathology)	5

D4. Obstetric	Wt
• ≥3 Consecutive pre-fetal (<10w) and/or early fetal death(s) (10w 0d – 15w 6d)	1
• Fetal death (16w 0d – 33w 6d) **in the absence of** PEC or PI with severe features	1
• PEC **or** PI (either with severe features, <34w 0d) with/without fetal death	3
• PEC **and** PI (both with severe features, <34w 0d) with/without fetal death	4

D5. Cardiac Valve	Wt
• Thickening	2
• Vegetation	4

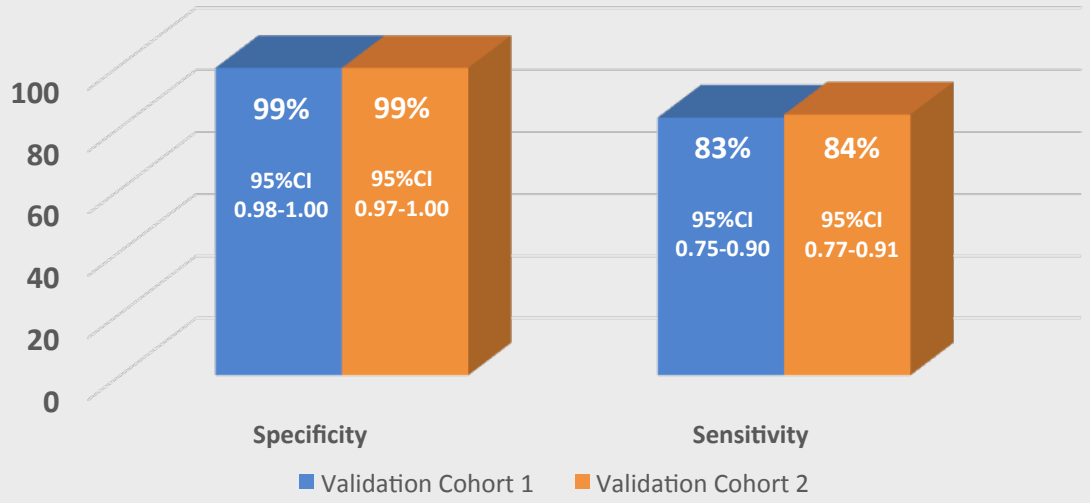
D6. Hematology	Wt
• Thrombocytopenia (Lowest 20-130x10^9/L)	2

D7. aPL test by coagulation-based functional assay - LA test	Wt
• Positive LA (single – one time)	1
• Positive LA (persistent)	5

D8. aPL test by solid phase assay - aCL ELISA and/or $a\beta_2$GPI ELISA (persistent)			Wt
• Moderate-high positive	IgM	aCL and/or $a\beta_2$GPI	1
• Moderate positive	IgG	aCL and/or $a\beta_2$GPI	4
• High positive	IgG	aCL or $a\beta_2$GPI	5
• High positive	IgG	aCL and $a\beta_2$GPI	7

3 + 3

2023 ACR/EULAR APS Classification Criteria



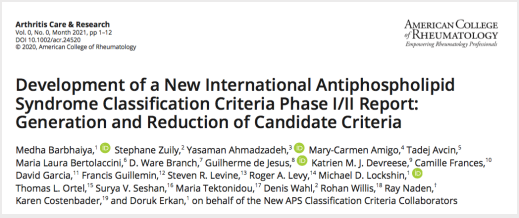
Conclusions

- Developed using rigorous methodology and international cohorts with multidisciplinary international input
  - Every phase was data-driven and based on consensus
- Clustered, additive, weighted, and risk-stratified independent domains
- ***Reflect the current thinking about APS, providing high specificity and a stronger foundation for APS research***

Future Considerations

- **If a case does not meet the APS classification criteria, the case may still be uncertain or equivocal, rather than "not APS"**
  - Uncertain or controversial cases should be studied separately to guide future updates of the new criteria
- **After publication, all ACR/EULAR-approved criteria sets are expected to undergo intermittent updates**

Further Reading



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Vol. 0, No. 0, Month 2021, pp 1–12
DOI 10.1002/acr.24520
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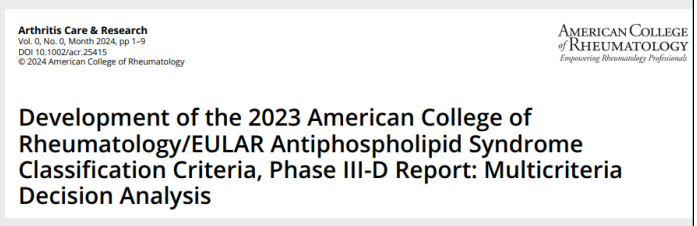
Development of a New International Antiphospholipid Syndrome Classification Criteria Phase I/II Report: Generation and Reduction of Candidate Criteria

Medha Barbhaiya,[1] Stephane Zuily,[2] Yasaman Ahmadzadeh,[3] Mary-Carmen Amigo,[4] Tadej Avcin,[5] Maria Laura Bertolaccini,[6] D. Ware Branch,[7] Guilherme de Jesus,[8] Katrien M. J. Devreese,[9] Camille Frances,[10] David Garcia,[11] Francis Guillemin,[12] Steven R. Levine,[13] Roger A. Levy,[14] Michael D. Lockshin,[1] Thomas L. Ortel,[15] Surya V. Seshan,[16] Maria Tektonidou,[17] Denis Wahl,[2] Rohan Willis,[18] Ray Naden,[1] Karen Costenbader,[19] and Doruk Erkan,[1] on behalf of the New APS Classification Criteria Collaborators



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DOI 10.1002/acr.25415
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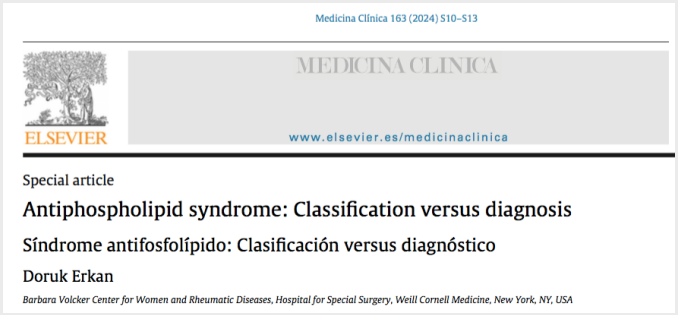
Development of the 2023 American College of Rheumatology/EULAR Antiphospholipid Syndrome Classification Criteria, Phase III-D Report: Multicriteria Decision Analysis



Medicina Clínica 163 (2024) S10–S13
MEDICINA CLINICA
www.elsevier.es/medicinaclinica

Special article

Antiphospholipid syndrome: Classification versus diagnosis

Síndrome antifosfolípido: Clasificación versus diagnóstico

Doruk Erkan

Barbara Volcker Center for Women and Rheumatic Diseases, Hospital for Special Surgery, Weill Cornell Medicine, New York, NY, USA

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Catastrophic - Microvascular - Non-thrombotic APS

Definite CAPS

- Involvement of ≥3 organs, systems and/or tissues
- Development of manifestations simultaneously or in less than a week
- Confirmation by histopathology of small vessel occlusion in at least one organ or tissue
- Confirmation of aPL x 2

Asherson RA, Cervera R, de Groot PG, Erkan D, et al. CAPS: international classification criteria on the classification and treatment guidelines. Lupus 2003;12:530

Definitions

Catastrophic - Microvascular - Non-thrombotic APS

Microvascular APS

- Livedo Racemosa
- Livedoid Vasculopathy Lesions (Skin Ulcers) with/without Peripheral Gangrene
- aPL Nephropathy (Acute/Chronic)
  - Post Kidney Transplant Rejection
- Diffuse Pulmonary Hemorrhage
- Cardiac Microthrombosis
- Adrenal Hemorrhage
- Acute Ischemic Encepholopathy

With/without Thrombocytopenia and/or Hemolytic Anemia

Definitions

(aPL-Nephropathy)

The Journal of Rheumatology 2023;xx:xxxx
doi:10.3899/jrheum.2022-1200
First Release September 1 2023

The Journal of Rheumatology

Efforts to Better Characterize "Antiphospholipid Antibody Nephropathy" for the 2023 ACR/EULAR Antiphospholipid Syndrome Classification Criteria: Renal Pathology Subcommittee Report

Medha Barbhaiya[1], Maxime Taghavi[2], Stephane Zuily[3], Vinicius Domingues[4], Eugenia Y. Chock[5], Maria G. Tektonidou[6], Doruk Erkan[1], and Surya V. Seshan[7], on behalf of the New APS Classification Criteria Steering Committee and APS ACTION Collaborators

Catastrophic - Microvascular - Non-thrombotic APS

Non-thrombotic APS

- Thrombocytopenia (immune mediated)
- Hemolytic Anemia (immune mediated)
- Cardiac Valve Disease
  - Vegetation
  - Thickening

Definitions

Catastrophic - Microvascular - Non-thrombotic APS

Thrombotic Microangiopathy (Syndrome)

Definitions

Catastrophic - Microvascular - Non-thrombotic APS

Thrombotic Microangiopathy Syndromes

- Endothelial injury-related thrombosis in arterioles and capillaries, which is commonly associated with
  - Thrombocytopenia
  - Microangiopathic hemolytic anemia, and/ or
  - Kidney failure (or other organ failure)

CAPS – SEPSIS – DIC – HIT - TTP
HUS - aHUS - HELLP SYNDROME

Definitions

Catastrophic - Microvascular - Non-thrombotic APS

Why Microvascular APS is Scary?

- New Onset Microvascular APS is a Red Flag for CAPS
  - "CAPS" Patients Rarely Present with "CAPS"
- Microvascular APS does not respond to anticoagulation
- The optimal management is unknown

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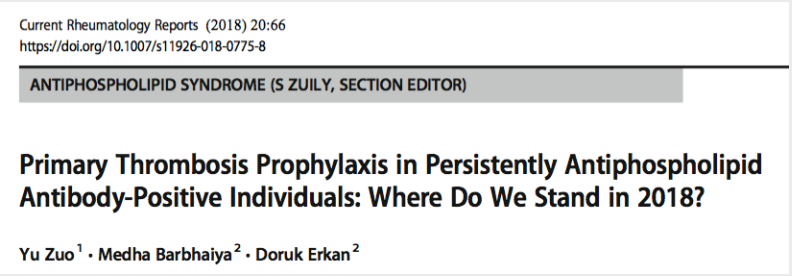
Primary Thrombosis Prevention

- The ideal strategy should be risk-stratified
  - Age, traditional cardiovascular disease (CVD) and venous thrombosis risk factors, and systemic autoimmune diseases
- CVD and venous thrombosis risk factors should be investigated regularly and eliminated/treated rigorously
- The effectiveness of low dose aspirin is not supported by prospective/RCT data
- My Recommendation: General CVD Guidelines should play a role in the decision making for low dose aspirin therapy

Take Home Messages

Further Reading



Current Rheumatology Reports (2018) 20:66
https://doi.org/10.1007/s11926-018-0775-8

ANTIPHOSPHOLIPID SYNDROME (S ZUILY, SECTION EDITOR)

Primary Thrombosis Prophylaxis in Persistently Antiphospholipid Antibody-Positive Individuals: Where Do We Stand in 2018?

Yu Zuo[1] · Medha Barbhaiya[2] · Doruk Erkan[2]

Controversies in the Management of Antiphospholipid Syndrome

Sabrina V. Porta, MD, Danieli Castro Oliveira de Andrade, MD, PhD,† Doruk Erkan, MD, MPH,‡§|| José A. Gómez- Puerta, MD, PhD,¶ Luis J. Jara, MD, PhD,# Paula Alba Moreyra, MD, PhD,** and Guillermo J. Pons-Estel, MD, PhD††*

JCR: Journal of Clinical Rheumatology • Volume 00, Number 00, Month 2023

Secondary Thrombosis Prevention

- The ideal strategy should be risk-stratified
  - Age, traditional cardiovascular disease (CVD) and venous thrombosis risk factors, and systemic autoimmune diseases
- CVD and venous thrombosis risk factors should be investigated regularly and eliminated/treated rigorously
- High-intensity anticoagulation is not supported by RCTs
- Additional low dose aspirin should be considered in high CVD-risk patients
- Direct oral anticoagulants (DOACs) are not recommended in APS
- No strong data for risk-stratified long term-management recommendations

Take Home Messages

Secondary Thrombosis Prevention

Lupus
2020, Vol. 29(12) 1571–1593

Guidance	Venous	Arterial
International Congress on Antiphospholipid Antibodies (2020)	- If single- or double-positive aPL following first episode of VTE continuation of DOAC may be considered, while awaiting confirmation of persistence of aPL, based on testing after at least 12 weeks, and thereafter; shared decision-making with patient - If triple aPL-positive and already on a DOAC, recommend switch from DOAC to warfarin or other VKA	DOACs should be avoided First line therapy should be a VKA

16th International Congress on Antiphospholipid Antibodies Task Force Report on Antiphospholipid Syndrome Treatment Trends

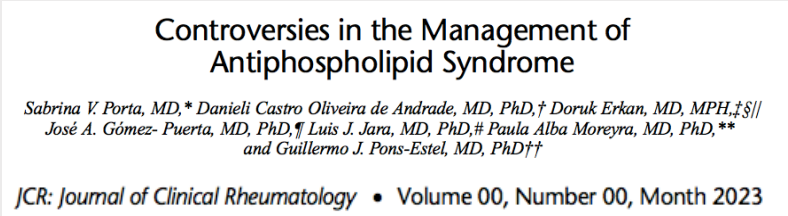
Hannah Cohen[1,2], Maria J Cuadrado[3], Derya Erkan[4], Ali Duarte-Garcia[5,6], David A Isenberg[5,7], Jason S Knight[8], Thomas L Ortel[9], Anisur Rahman[7], Jane E Salmon[10], Maria G Tektonidou[11], David J Williams[2,12], Rohan Willis[13], Scott C Woller[14] and Danieli Andrade[15]

Further Reading

16th International Congress on Antiphospholipid Antibodies Task Force Report on Antiphospholipid Syndrome Treatment Trends

Lupus
2020, Vol. 29(12) 1571–1593

Hannah Cohen[1,2], Maria J Cuadrado[3], Doruk Erkan[4], Ali Duarte-Garcia[5,6], David A Isenberg[2,7], Jason S Knight[8], Thomas L Ortel[9], Anisur Rahman[7], Jane E Salmon[10], Maria G Tektonidou[11], David J Williams[2,12], Rohan Willis[13], Scott C Woller[14] and Danieli Andrade[15]



Controversies in the Management of Antiphospholipid Syndrome

Sabrina V. Porta, MD, Danieli Castro Oliveira de Andrade, MD, PhD,† Doruk Erkan, MD, MPH,‡§|| José A. Gómez- Puerta, MD, PhD,¶ Luis J. Jara, MD, PhD,# Paula Alba Moreyra, MD, PhD,** and Guillermo J. Pons-Estel, MD, PhD††*

JCR: Journal of Clinical Rheumatology • Volume 00, Number 00, Month 2023

DISCUSSION POINTS

- **Antiphospholipid Syndrome Definition**
  - **Antiphospholipid Antibody Tests & Profile**
  - **Diagnosis & Classification**
- **Thrombotic APS**
  - **Primary & Secondary Thrombosis Prevention**
- **Obstetric APS**
- **Catastrophic – Microvascular - Non-Thrombotic APS**
  - **The Role of Immunosuppression in APS**

Immunosuppressive Approach

- The supporting (pre) clinical evidence is limited
- The management:
  - Based on mostly theoretical and preclinical evidence, very limited clinical evidence in human, and the "expert" opinion.
- *We need clinical studies other than case reports/series to accumulate more evidence*

Catastrophic APS Management

Anticoagulation + Corticosteroids + Plasma Exchange and/or IVIG
(+/- Additional Medications As needed)

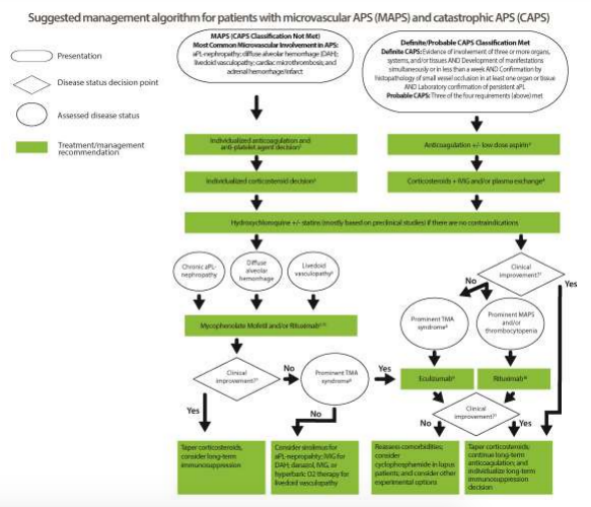
Journal of Thrombosis and Haemostasis, **16**: 1656–1664 DOI: 10.1111/jth.

RECOMMENDATIONS AND GUIDELINES

McMaster RARE-Bestpractices clinical practice guideline on diagnosis and management of the catastrophic antiphospholipid syndrome

K. LEGAULT,* H. SCHUNEMANN,* C. HILLIS,* C. YEUNG,* E. A. AKL,*† M. CARRIER,‡ R. CERVERA,§ M. CROWTHER,* F. DENTALI,¶ D. ERKAN,** G. ESPINOSA,§ M. KHAMASHTA,†† J. J. MEERPOHL,‡‡ K. MOFFAT,*§§ S. O'BRIEN,¶¶ V. PENGO,*** J. H. RAND,** I. RODRIGUEZ PINTO,††† L. THOM‡‡‡ and A. IORIO*

Microvascular/Catastrophic APS Management



Arthritis & Rheumatology
Vol. 0, No. 0, Month 2021, pp 1–11
DOI: 10.1002/art.41891

American College of Rheumatology
Empowering Rheumatology Professionals

EXPERT PERSPECTIVES ON CLINICAL CHALLENGES

Expert Perspective: Management of Microvascular and Catastrophic Antiphospholipid Syndrome

Doruk Erkan

CONCLUSION

- aPL-positive patients with hematologic involvement, complement-mediated TMA, microvascular disease, and/or CAPS require a treatment strategy beyond anticoagulation
- Immunosuppressive strategies are mostly based on anecdotal experience given the limited number of clinical studies, and treatment decisions should be individualized for each patient
- As new treatment approaches are investigated for APS, it is important to keep in mind that microvascular disease in APS is a distinct subset from mechanistic, pathologic, and treatment perspectives.

Immunosuppressive Approach

Current Status

- Hydroxychloroquine
- Statins
- Traditional DMARDs
- B Cell Inhibition
- mTOR Pathway Inhibition
- Complement Inhibition

Future Perspectives

- Daratumumab
- Defibrotide
- CAR T-Cell Therapy

Future - Daratumumab

dare - APS

APS ACTION

NOT YET RECRUITING

ClinicalTrials.gov Identifier: NCT05671757

Daratumumab in Primary Antiphospholipid Syndrome (DARE-APS)

Information provided by National Institute of Allergy and Infectious Diseases (NIAID) (Responsible Party)

Last Update Posted: 2023-01-05

Collaborators and Investigators

This is where you will find people and organizations involved with this study.

SPONSOR

National Institute of Allergy and Infectious Diseases (NIAID)

COLLABORATORS

Immune Tolerance Network (ITN)

PPD

Rho Federal Systems Division, Inc.

INVESTIGATORS

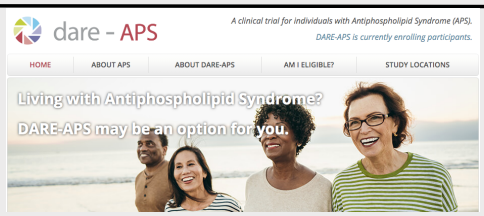
Study Chair: Doruk Erkan, M.D., M.P.H., Hospital for Special Surgery, New York: Division of Rheumatology

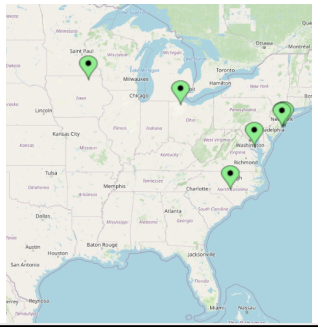
Study Chair: Jason Knight, M.D., Ph.D., University of Michigan Health System: Department of Internal Medicine, Division of Rheumatology

Future - Daratumumab

dare - APS

APS|ACTION





DARE APS Sites:

Hospital for Special Surgery,
U. Michigan, NYU Langone,
Northwell Health, Johns Hopkins
University, Mayo Clinic Rochester,
Weill Cornell, Duke University

www.dare-aps.org

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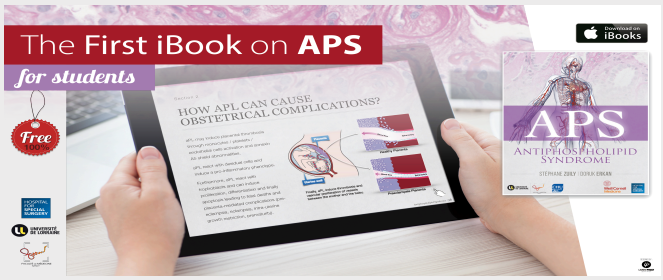
THANK YOU



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