

Protocole National de Diagnostic et de Soins

Syndrome des Anti-Phospholipides de l'adulte et de l'enfant



Ce PNDS a été rédigé sous l'égide de :

Centre de référence du lupus, syndrome des anticorps anti-phospholipides et autres maladies auto-immunes rares

Et du

Centre de référence des rhumatismes inflammatoires et maladies auto-immunes systémiques rares de l'enfant RAISE

Et de la

Filière des maladies auto-immunes et auto-inflammatoires rares FAI²R

Liste des personnes ayant collaboré à la rédaction du PNDS « Syndrome des Anti-Phospholipides et porteurs d'Anti-Phospholipides »

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Déclarations d'intérêt

Tous les participants à l'élaboration du PNDS ont rempli une déclaration d'intérêt. Les déclarations d'intérêt sont en ligne et consultables sur le site internet du(des) centre(s) de référence.

Objectifs du protocole national de diagnostic et de soins

L'objectif de ce protocole national de diagnostic et de soins (PNDS) est d'exposer aux professionnels concernés la prise en charge diagnostique et thérapeutique optimale actuelle et le parcours de soins d'un patient atteint de SAPL. Il a pour but d'optimiser et d'harmoniser la prise en charge et le suivi de cette maladie rare sur l'ensemble du territoire.

Il permet également d'identifier les spécialités pharmaceutiques utilisées dans une indication, mais non prévues dans l'autorisation de mise sur le marché (AMM) ainsi que les spécialités, produits ou prestations nécessaires à la prise en charge des patients mais non habituellement pris en charge ou remboursés.

Ce PNDS peut servir de référence au médecin généraliste en concertation avec les autres médecins spécialistes.

Le PNDS ne peut cependant pas envisager tous les cas spécifiques, toutes les comorbidités ou complications, toutes les particularités thérapeutiques, tous les protocoles de soins hospitaliers... Il ne peut donc pas revendiquer l'exhaustivité des conduites de prise en charge possibles, ni se substituer à la responsabilité individuelle du médecin vis-à-vis de son patient. Cependant, le PNDS décrit la prise en charge de référence actuelle d'un patient atteint de SAPL. Il sera mis à jour en fonction des nouvelles données validées.

Le présent PNDS a été élaboré selon la « Méthode d'élaboration d'un protocole national de diagnostic et de soins pour les maladies rares » publiée par la Haute Autorité de Santé en 2012 (guide méthodologique disponible sur le site de la HAS : www.has-sante.fr).

Méthode de travail

Le présent PNDS a été élaboré selon la « Méthode d'élaboration d'un protocole national de diagnostic et de soins pour les maladies rares » publiée par la Haute Autorité de Santé en 2012 (guide méthodologique disponible sur le site de la HAS : www.has-sante.fr).

Une réunion de mise en place en visioconférence avec les coordinateurs a permis de déterminer le plan du PNDS, la liste des rédacteurs pour chacune des parties/spécificités du PNDS ainsi que la liste des relecteurs.

Durant la phase de rédaction, chaque groupe de rédacteurs a réalisé une analyse de la littérature en langue anglaise et française avant de rédiger la partie du PNDS correspondante.

A l'issue de la rédaction, toutes les parties du PNDS ont été assemblées puis homogénéisées par les coordinateurs.

Durant la phase de relecture, chacun des rédacteurs et relecteurs a commenté la première version du PNDS.

A l'issue de la relecture, les coordinateurs ont pris en compte tous les commentaires pour produire la deuxième version du PNDS.

Deux demi-journées de finalisation se sont enfin tenues (en visioconférence), où tous les rédacteurs et relecteurs étaient conviés, afin de refaire une revue complète et collégiale du texte pour en produire une version finalisée à publier.

Tableau 1. Recommandations de bonne pratique

Auteur, année, référence, pays	Objectif	Stratégie de recherche bibliographique renseignée (Oui / Non)	Recueil de l'avis des professionnels (Oui / Non ; Lesquels)	Recueil de l'avis des patients (Oui / Non)	Populations et techniques (ou produits étudiés)	Résultats (avec grade des recommandations si disponible)
Miyakis, 2006, (2), USA	Consensus international sur la mise à jour des critères de classification du SAPL	Oui	Groupe d'experts	Non	Oui	We propose amendments to the Sapporo criteria. We also provide definitions on features of APS that were not included in the updated criteria.
Devreese, 2020, (4)(29), International	Mise à jour des recommandations de détection de l'ACCL	Non	Groupe d'experts	Non	Oui	Cutoff values should be established in-house on at least 120 normals, with transference of the manufacturer's cutoffs as an alternative. Reporting of results has not been changed, although more attention is focused on what clinicians should know. Patient selection for LA testing has been expanded.

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Tektonidou, 2019, (17) (44), Européen	Recommandations EULAR sur la prise en charge du SAPL	Oui	Groupe d'experts	Non	Oui	Recommandations sur la prise en charge du SAPL chez l'adulte
Tripodi, 2016, (18), International	Recommandations sur le suivi des patients ACCL sous AVK	Non	Groupe d'experts	Non	Oui	Recommandations sur le suivi des patients ACCL sous AVK
Barbhaiya, 2021, (22), International	Processus d'élaboration de nouveaux critères de classification SAPL	Oui	Groupe d'experts	Non	Oui	Using data- and consensus-driven methodology, we identified 27 APS candidate criteria in 6 clinical or laboratory domains. In the next phase, the proposed candidate criteria will be used for real-world case collection and further refined, organized, and weighted to determine an aggregate score and threshold for APS classification.

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Asherson, 2003, (52), International	Consensus international de prise en charge du CAPS	Non	Groupe d'experts	Non	Oui	Anticoagulation (usually intravenous heparin followed by oral anticoagulants), corticosteroids, plasma exchange, intravenous gammaglobulins and, if associated with lupus flare, cyclophosphamide, are the most commonly used treatments for catastrophic APS patients.
Cervera, 2011, (57), International	Recommandations internationales sur le CAPS	Oui	Groupe d'experts	Non	Oui	This article summarizes the studies analysed on catastrophic APS, APS nephropathy and heart valve lesions, and presents the recommendations elaborated by the Task Force after this analysis.

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Erkan, 2010, (62), USA-Espagne	Algorithme diagnostique	Oui	Groupe d'experts	Non	Oui	The goal of the updated catastrophic APS diagnostic algorithms is to provide a “step-by-step” approach to clinicians (and researchers) while assessing patients with multiple organ thromboses.
Groot, 2017, (85), International	Recommandations internationales sur le SAPL pédiatrique	Oui	Groupe d'experts	Non	Oui	The SHARE initiative provides international, evidence-based recommendations for diagnosis and treatment for children with APS and thereby facilitates improvement and uniformity of care.

Tableau 2. Revues systématiques de la littérature

Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
Bernardoff, 2022, (3), France-USA	aPL et risque d'AHAI au cours du LS	Oui	Oui	NA	Oui	The occurrence of hemolytic anemia was strongly associated with presence of aPL in SLE patients. Interestingly, IgM isotypes indicate an increased risk of hemolytic anemia in SLE.
Joste, 2018, (8), France	Diagnostic biologique du SAPL: des critères à la pratique	Non	Oui	NA	Non	Cette revue décrit les différents types d'anticorps antiphospholipides, la relation entre profil biologique et risque thrombotique et aborde les aspects pratiques de l'interprétation des tests biologiques.
Ruiz-Irastorza, 2010, (15), International	SAPL	Non	Oui	NA	Non	Mise au point sur le SAPL
Abdel-Wahab, 2018, (19), USA	Risque de développement d'aPL après infection virale	Oui	Oui	NA	Oui	Viral infection can increase the risk of developing elevated aPL antibodies and associated thromboembolic events. Results are contingent on the reported information.
Foret, 2021, (33), France	aPL et C OVID	Oui	Oui	NA	Oui	Prevalence of Lupus Anticoagulant (LA) ranged from 35% to 92% in ICU patients. Anti-cardiolipin (aCL) IgG and IgM were found in up to 52% and up to 40% of patients

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						respectively. Anti- β 2-glycoprotein I (a β 2-GPI) IgG and IgM were found in up to 39% and up to 34% of patients respectively. Between 1% and 12% of patients had a triple positive aPL profile. There was a high prevalence of a β 2-GPI and aCL IgA isotype. Two cohort studies found few persistent LA but more persistent solid phase assay aPL over time.
Sammaritano, 2021, (41), USA	Contraception au cours du SAPL	Non	Oui	NA	Non	Studies support very low risk for most progestin-only contraceptives in patients with increased thrombotic risk, but suggest increased VTE risk with depot-medroxyprogesterone acetate. Highest efficacy contraceptives are intrauterine devices and subdermal implants, and these are recommended for women with aPL/APS. Progestin-only pills are effective and low risk. Perimenopausal symptoms may be treated with nonhormone therapies in aPL/APS patients: vasomotor symptoms can improve with nonhormonal medications and cognitive behavioral therapy, and genitourinary symptoms often

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						improve with intravaginal estrogen that has limited systemic absorption.
Ünlü, 2016, (45), USA-France	Signification clinique des aPL au cours du LS	Non	Oui	NA	Non	Compared with SLE patients without aPL, SLE patients with aPL have a higher prevalence of thrombosis, pregnancy morbidity, valve disease, PH, LR, thrombocytopenia, hemolytic anemia, acute/chronic renal lesions, and moderate/severe cognitive impairment; worse QoL; and higher risk of organ damage.
Cervera, 2014, (59), International	Mise au point sur le CAPS	Non	Oui	NA	Non	The objectives of this Task Force were to assess the current knowledge on pathogenesis, clinical and laboratory features, diagnosis and classification, precipitating factors and treatment of CAPS in order to address recommendations for future research.
Rodriguez-Pinto, 2015, (70), Espagne	Rituximab et CAPS	Non	Non	NA	Non	In selected patients, new therapies such as rituximab may be a treatment option. In this review, the rationale for using rituximab in CAPS is discussed.

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Uthman, 2007, (76), Liban et Grande Bretagne	Atteintes abdominales du CAPS	Oui	Oui	NA	Oui	A high index of suspicion for any signs of abdominal involvement should be considered in patients with APS. In addition screening for aPL should be carried out in patients who present with hepatic vein occlusion and unexplained signs of intestinal angina.
Rosina, 2021, (94), Italie	SAPL pédiatrique	Non	Non	NA	Non	As a whole, the knowledge of the multifaceted nature of pediatric APS should be implemented to further reduce the risk of underdiagnosing or undertreating this condition. It is desirable that the recent insights into APS pathogenesis, in particular the elucidation of the physiologic role of β 2GPI and the identification of novel cellular pathogenic players, will soon allow opening new windows of opportunity in the management of pediatric APS.
Soybilgic, 2020, (96), USA-Slovénie	SAPL pédiatrique	Non	Non	NA	Non	Mise au point sur le SAPL pédiatrique
Wincup, 2018, (97), GB	Différence entre le SAPL chez l'enfant et l'adulte	Non	Non	NA	Non	A number of key differences are seen when comparing the disease in childhood with the more well described adult onset form of the disease. Evidently the rates of PM

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						related symptoms are seldom seen in the childhood form of the disease. Children with APS are also at an increased risk of recurrent thrombotic events when compared with adults and so it is essential to maintain long-term anticoagulant therapy.

Tableau 3. Etudes cliniques

Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
Lockshin, 2000, (1), USA	Validation des critères de Sapporo	Etude prospective	243 patients	NA	Résultat classification	The Sapporo criteria for APS compare favorably with the American College of Rheumatology criteria for SLE and are usable for clinical studies.
Gendron, 2021, (6), France	Prévalence et valeur pronostique des aPL au cours du Covid	Etude prospective observationnelle	249 patients	NA	Présence d'aPL	Patients with COVID-19 have an increased prevalence of LAC positivity associated with biologic markers of inflammation. However, LAC positivity at the time of hospital admission is not associated with VTE risk and/or in-hospital mortality.
Jourdi, 2019, (9), France	Utilité du charbon activé pour doser les ACCL sous NACO	Etude prospective	151 patients	Recherche ACCL en DRVVT, HPLC-MS	Résultats d'ACCL	For dRVVT testing in DOAC patients, we suggest the use of DOAC remove® for every rivaroxaban sample, whereas it might only be used in positive apixaban and dabigatran samples. A residual DOAC interference cannot be ruled out in case of persisting dRVVT positive results after treatment with DOAC remove®.

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Maelegheer, 2018, (11), Belgique	Impact des cycles de gel-dégel sur les titres d'aPL	Etude prospective	42 patients	5 cycles de gel-dégel	Titres d'aPL	For all four aPL no statistical difference or degradation from positive to negative was seen, even after five FTC. The CCC between the first and fifth FTC were between 0.98 and 1 for all four aPL. aCL IgM/IgG and aβ2GPI IgM/IgG antibody titer, over a broad titer range, are stable over time and after repeated FTC.
Mazodier, 2012, (12), France	Hypoprothrombinémie-ACCL syndrome	Revue de cas	8 patients	NA	NA	LAHS associated with autoimmune diseases should be diagnosed and managed carefully because the disease is persistent and severe hemorrhagic complications are common.
Pengo, 2011, (13), Italie	Incidence d'un premier évènement thrombotique chez des porteurs d'aPL asymptomatiques	Etude prospective	104 patients	NA	Survenue d'un évènement thrombotique	The occurrence of a first TE in carriers of high-risk aPL profile is considerable; it is more frequent among male subjects and in the presence of additional risk factors for venous TE.
Arnaud, 2015, (20), International	Meta-analyse sur l'efficacité de l'AAS en prévention primaire des thromboses chez des patients aPL	Méta-analyse	497 patients	NA	Survenue d'un évènement thrombotique	This individual patient data meta-analysis shows that the risk of first thrombotic event as well of first arterial thrombotic event is significantly decreased among SLE patients and asymptomatic aPL

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Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
						individuals treated by low-dose aspirin.
Arnaud, 2014, (21), International	Meta-analyse sur l'efficacité de l'AAS en prévention primaire des thromboses chez des patients aPL	Méta-analyse	1208 patients	NA	Survenue d'un évènement thrombotique	This meta-analysis shows that the risk of first thrombotic event is significantly decreased by low dose aspirin among asymptomatic aPL individuals, patients with SLE or obstetrical APS.
Bazzan, 2009, (23), Italie	Présence d'aPL au cours des cancers	Etude prospective	137 patients	Recherche d'aPL	Présence d'aPL et survenue de thromboses	A high prevalence of low-titre aPL was found in cancer patients at diagnosis, but no statistical difference in thrombosis-free survival or in overall survival was observed between aPL positive and aPL negative patients.
Chock, 2019, (26), USA-France	aPL et risque de thrombopénie au cours du LS	Méta-analyse + revue de la littérature	9019 patients	NA	Thrombopénie	The occurrence of thrombocytopenia was strongly determined by various aPL profiles in SLE patients. While the association between IgM antibodies and other APS manifestations including thrombosis is debated, IgM isotypes are helpful in the risk stratification of thrombocytopenia in SLE.
Cuadrado, 2014, (27), International	AAS à petite dose +/- AVK à petite dose en prévention	Etude prospective	166 patients	AAS à petite dose +/- AVK à petite dose	Survenue de thromboses	No differences in the number of thromboses were observed between patients treated with LDA

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	primaire des thromboses chez les patients aPL					vs those treated with LDA + W. More episodes of bleeding were detected in the LDA + W group. The LDA + W regime was significantly less safe and not as acceptable as LDA alone.
Devignes, 2019, (28), France	Persistance des aPL à 12 semaines	Etude rétrospective	17367 patients	NA	Taux d'aPL	Data from a large database of an aPL referral laboratory showed that the time interval of 12 weeks defining persistence of aPL positivity was appropriate for the majority of patients.
El Hasbani, 2021, (30), Liban	aPL au cours des maladies auto-immunes et auto-inflammatoires, hors LS	Méta-analyse	3242 patients	NA	Présence d'aPL	Anti-phospholipid antibodies can be detected in up to a third of patients with inflammatory and autoimmune RMDs, especially in SSc.
Erkan, 2018, (31), International	HCQ en prévention primaire des thromboses chez les patients aPL sans MAI	Etude prospective	20 patients	HCQ ou PCB	Survenue de thromboses	Given that a small number of patients with a relatively short follow-up were enrolled in our RCT, and no patients developed thrombosis, we cannot accurately assess the effectiveness of HCQ for primary thrombosis prevention in persistently aPL-positive patients with no other systemic autoimmune diseases.

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Erkan, 2007, (32), USA	AAS en prévention primaire des thromboses chez les patients aPL	Etude prospective	98 patients	AAS ou PCB	Survenue de thromboses	Our results suggest that asymptomatic, persistently aPL-positive individuals do not benefit from low-dose aspirin for primary thrombosis prophylaxis, have a low overall annual incidence rate of acute thrombosis, and develop vascular events when additional thrombosis risk factors are present.
Gkrouzman, 2021, (34), International	Stabilité des aPL dans le temps	Etude de registre	472 patients	NA	Titres des aPL au cours du suivi	Approximately 80% of our international cohort patients with clinically meaningful aPL profiles at baseline remain stable at a median follow-up of 5 years; triple aPL-positivity increase the odds of a stable aPL profile.
Islam, 2020, (36), Malaisie	Prévalence des aPL au cours du Behçet	Méta-analyse + revue de la littérature	999 patients	NA	Présence d'aPL	This meta-analysis established that there is a significantly high prevalence of aPLs (i.e., aCL and anti-β2-GPI antibodies) in patients with BD when compared to controls.
Merashli, 2017, (39), Liban-Portugal	Prévalence des aPL au cours de la ScS	Méta-analyse + revue de la littérature	9 études de cas et 11 cohortes	NA	Présence d'aPL	A strong relationship exists between aCL and aβ2GPI of IgG/IgM isotype and SSc; patients positive for these antibodies are more likely to suffer from PAH, RD, thrombosis, and DI.

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Rees, 2006, (40), GB	Prévalence des aPL au cours des vascularites	Etude prospective	144 patients	NA	Présence d'aPL	The antiphospholipid syndrome, aCL, and the LA may occur in association with PSV.
Sobanski, 2018, (43), France	Prévalence des aPL au cours de la ScS	Méta-analyse + revue de la littérature + étude de registre	249 patients	NA	Présence d'aPL	This study found a prevalence of aPL positivity in our SSc population of 6.4% (3.8-10.4) and an overall worldwide pooled prevalence of 14% (9-20). In our SSc population, aPL positivity was associated with VT and miscarriage.
Urbanus, 2009, (46), Pays-Bas	aPL et risque d'IDM/AVC chez les femmes jeunes	Etude prospective	175 patientes AVC, 203 patientes IDM et 628 contrôles	NA	Caractéristiques cliniques et biologiques	Our results suggest that lupus anticoagulant is a major risk factor for arterial thrombotic events in young women, and the presence of other cardiovascular risk factors increases the risk even further.
Zuily, 2011, (47), France	aPL et pathologies valvulaires au cours du LS	Méta-analyse	1656 patients	NA	Atteinte valvulaire en échographie	Overall, the presence of aPL in SLE patients is significantly associated with an increased risk for HVD including Libman-Sacks endocarditis. The risk conferred by IgG anticardiolipin antibodies is as strong as by lupus anticoagulant.
Zuily, 2020, (48), International	Phénotypes cliniques des patients aPL	Analyse de clusters	497 patients	NA	Caractéristiques cliniques et biologiques	Based on our hierarchical cluster analysis, we identified different clinical phenotypes of aPL-positive patients discriminated by aPL profile, lupus or CVD risk factors.

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Zuily, 2017, (49), International	aPL et risque d'HTP au cours du LS	Méta-analyse + revue de la littérature	4480 patients	NA	HTP	Among SLE patients, aPL can identify patients at risk for PH and APAH.
Asherson, 1998, (51), Afrique du Sud	Description de patients avec un CAPS	Etude descriptive	50 patients	NA	Caractéristiques cliniques et biologiques	A review of 50 patients who manifest features of the catastrophic antiphospholipid syndrome (CAPS) is presented.
Asherson, 1998, (53), International	Description de patients avec un CAPS	Etude descriptive	50 patients	NA	Caractéristiques cliniques et biologiques	We analyzed the clinical and laboratory characteristics of 50 patients with catastrophic antiphospholipid syndrome (APS) (5 from our clinics and 45 from a MEDLINE computer-assisted review of the literature from 1992 through 1996).
Bayraktar, 2007, (54), International	Comparaison des CAPS avec ou sans LS associé	Etude de registre	230 patients	NA	Caractéristiques cliniques et biologiques	SLE is a poor prognostic factor in patients with CAPS and cyclophosphamide may be beneficial in those with SLE-CAPS.
Berman, 2013, (55), International	Rituximab au cours du CAPS	Etude de registre	20 patients	NA	Caractéristiques cliniques et biologiques	The purpose of this study is to describe the clinical manifestations, laboratory features, and outcomes of rituximab-treated CAPS patients. In addition, the rationale for using rituximab in catastrophic APS is discussed.

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Bucciarelli, 2006, (56), International	Mortalité au cours du CAPS	Etude de registre	250 patients	NA	Caractéristiques cliniques et biologiques	Cerebral involvement (mainly consisting of stroke), cardiac involvement, and infections were considered the main causes of death in patients with CAPS. The presence of SLE was related to a higher mortality rate. According to the results of the present study, ACs plus CS plus PE should be the first line of therapy in patients with CAPS.
Cervera, 2009, (58), International	Description du CAPS	Etude de registre	280 patients	NA	Caractéristiques cliniques et biologiques	The catastrophic APS is an uncommon but potentially life-threatening condition that needs high clinical awareness. The therapeutic connotation is that this may be corrected with the combination of anticoagulation plus steroids plus attempts at achieving a prompt reduction of antiphospholipid antibody titer (i.e. PE and/or IVIG).
Espinosa, 2013, (63), Espagne	Description du CAPS en rechute	Etude de registre	9/282 patients	NA	Caractéristiques cliniques et biologiques	Although relapses are rare in patients with catastrophic APS, these results support the hypothesis that an association between microangiopathic hemolytic anemia and relapsing of catastrophic APS could be present.

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Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
Guillot, 2018, (64), France	Eculizumab au cours du CAPS	1 cas + revue de la littérature	1 patient	NA	Caractéristiques cliniques et biologiques	Our case supports the efficacy of eculizumab for refractory CAPS, although larger studies are necessary to confirm this observation.
Pineton de Chambrun, 2019, (68), France	Diagnostic de CAPS en réanimation	Etude de registre	134 patients	NA	Diagnostic de CAPS retenu	In this study, CAPS criteria were not associated with mortality of thrombotic APS patients requiring ICU admission. Further studies are needed to evaluate the adequacy of CAPS criteria for critically-ill APS patients.
Pineton de Chambrun, 2020, (69), France	Facteurs de mortalité de CAPS en réanimation	Etude de registre	134 patients	NA	Caractéristiques cliniques et biologiques	In-ICU anticoagulation was the only APS-specific treatment independently associated with survival for all patients. Double therapy was independently associated with better survival of patients with definite/probable catastrophic APS. In these patients, further studies are needed to determine the role of triple therapy.
Rodriguez-Pinto, 2018, (71), International	Triple thérapie au cours du CAPS	Etude de registre	502 patients	NA	Caractéristiques cliniques et biologiques	Triple therapy is independently associated with a higher survival rate among patients with CAPS.
Rodriguez-Pinto, 2016, (72), International	Description du CAPS	Etude de registre	500 patients	NA	Caractéristiques cliniques et biologiques	Although the presentation of CAPS is characterized by multiorgan thrombosis and failure, clinical

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Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
						differences among patients exist based on age and underlying chronic diseases, e.g. malignancy and SLE.
Taraborelli, 2017, (75), International	Devenir au long cours des patients CAPS	Etude retrospective	115 patients	NA	Caractéristiques cliniques et biologiques	Despite therapy, a high proportion of patients experienced new thrombotic events and organ damage, while evolution toward CTD was infrequent.
Yelnik, 2020, (77), France	Eculizumab dans les CAPS réfractaires	Etude retrospective	11 patients	Eculizumab	Réponse au traitement	Patients with refractory CAPS respond inconsistently to eculizumab. However, eculizumab can successfully treat some critically ill patients and seems to be especially efficient in treating hematologic failure.
Abisror, 2013, (78), France	Maladies du spectre autistiques chez les enfants de mère SAPL	Etude retrospective	48 patients	NA	Maladies du spectre autistiques	Autism spectrum disorders could be observed in babies born to mothers with antiphospholipid syndrome, but there is no risk of thrombosis.
Alijotas-Reig, 2019, (79), International	SAPL obstetrical	Etude de registre	1000 patientes	NA	Caractéristiques cliniques et biologiques, devenir obstétrical	In this series, recurrent miscarriage is the most frequent poor outcome. To avoid false-negative diagnoses, all laboratory category subsets were needed. OAPS cases have very good foetal-maternal outcomes when treated. Results suggest that we were able to

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Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
						improve our clinical practice to offer better treatment and outcomes to OAPS patients.
Avcin, 2008, (80), International	SAPL pédiatrique	Etude de registre	121 patients	NA	Caractéristiques cliniques et biologiques	Clinical and laboratory characterization of patients with pediatric antiphospholipid syndrome implies some important differences between antiphospholipid syndrome in pediatric and adult populations. Comparisons between children with primary antiphospholipid syndrome and antiphospholipid syndrome associated with autoimmune disease have revealed certain differences that suggest 2 distinct subgroups.
Bouvier, 2014, (82), France	SAPL obstétrical	Etude rétrospective	513 patientes	NA	Caractéristiques cliniques et biologiques, devenir obstétrical	Improved therapies, in particular better prophylaxis of late pregnancy complications, are urgently needed for obstetric APS and should be evaluated according to the type of pregnancy loss.
Gris, 2011, (84), France	Enoxaparine + AAS en prévention secondaire après une pré-éclampsie sévère	Etude prospective	224 patientes	Enoxaparine + AAS	Devenir obstétrical	This pilot study shows that enoxaparin given early during the second pregnancy decreases the occurrence of placental vascular complications in women with a

PNDS Syndrome des Anti-Phospholipides de l'adulte et de l'enfant

Auteur, année, référence, pays	Objectif	Méthodologie, niveau de preuve	Population	Intervention	Critères de jugement	Résultats et signification
						previous severe pre-eclampsia during their first pregnancy.
Lageix, 2015, (86), France	Maladies du spectre autistiques chez les enfants aPL+	Etude prospective	44 patients	NA	Maladies du spectre autistiques	ASD had no significant relation with the presence of APL antibodies.
Mekinian, 2013, (89), International	Registre des enfants nés de mère SAPL	Etude de registre	134 patients	NA	Caractéristiques cliniques et biologiques	Despite the presence of APL in children, thrombosis or SLE were not observed. The presence of neurodevelopmental abnormalities seems to be more important in these children, and could justify long-term follow-up.
Sloan, 2021, (95), USA	FDR de thromboses chez les enfants aPL+	Etude rétrospective	491 patientes	NA	Survenue de thrombose	Data from our cohort suggest that Raynaud's phenomenon is a potential predictor of arterial thrombosis while the presence of hypertension or anti-hypertensive medication use is a potential predictor of venous thrombosis in aPL positive pediatric carriers.

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