Anterior uveitis investigation by Canadian ophthalmologists: insights from the Canadian National Uveitis Survey

Farzin Forooghian, MD, FRCSC; Rishi Gupta, MD; David T. Wong, MD, FRCSC; Larissa Derzko-Dzulynsky, MD, FRCSC

ABSTRACT • RÉSUMÉ

Background: Anterior uveitis can be the result of a number of underlying etiologies and is commonly seen in ophthalmology practice. The clinician must choose from a battery of potential investigations. A nonselective approach to testing is costly and inefficient and can lead to misinterpretation of false positive results. The purpose of this study was to identify investigation patterns of ophthalmologists in Canada for anterior uveitis and to make evidence-based recommendations for appropriate tests that could lead to improved patient care and more cost-effective use of health care resources.

Methods: A cross-sectional survey of practicing ophthalmologists, fellows, and residents in Canada was conducted in September 2004. The survey instrument was an 11-item questionnaire mailed to 1196 physicians in Canada.

Results: A total of 498 (42%) physicians responded to the survey. A wide range of tests were chosen when respondents were presented with 5 scenarios for anterior uveitis and asked what investigations they would order. Many of these tests have low diagnostic yields because they lack the sensitivity and specificity to be used as routine investigations in the setting of anterior uveitis.

Interpretation: Increased education and awareness could lead to more cost-effective and efficient investigations in the setting of anterior uveitis. On the basis of evidence from a review of the literature, we make recommendations for investigations that should be considered in patients with anterior uveitis.

Contexte : L'uvéite antérieure peut avoir diverses causes sous-jacentes. Nous le constatons fréquemment en ophtalmologie et le clinicien doit choisir parmi une batterie d'examens possibles. Procéder à des tests sans choix judicieux préalables peut s'avérer coûteux et inefficace et mener à une interprétation erronée de résultats faussement positifs. Cette étude a pour objet de déterminer les types de test que font les ophtalmologistes canadiens pour l'uvéite antérieure et de présenter des recommandations fondées sur des données probantes pour assurer la pertinence des tests susceptibles d'améliorer le soin des patients et une utilisation plus efficiente des ressources pour les soins de santé.

Méthodes : Un sondage transversal a été mené au Canada en septembre 2004 auprès des ophtalmologistes en exercice, des fellows et des résidents. Un questionnaire portant sur 11 points a été envoyé à 1196 médecins canadiens.

Résultats : En tout, 498 médecins (42 %) ont répondu au sondage. Mis en présence de divers scénarios pour l'uvéite antérieure et invités à indiquer les tests qu'ils ordonneraient, les répondants en ont choisi une vaste gamme. Plusieurs de ces tests ont un faible rendement diagnostic, parce qu'ils n'ont pas toute la sensibilité ni la spécificité requises pour les examens de routine du siège de l'uvéite antérieure.

Interprétation : Une formation et une sensibilisation accrues pourraient entraîner une plus grande rentabilité et accroître l'efficience des examens du siège de l'uvéite antérieure. À partir des données de la littérature, nous présentons des recommandations quant aux types d'examen à considérer pour les patients qui ont une uvéite antérieure.

From the Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Ont.

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Correspondence to: Farzin Forooghian, MD, Hospital for Sick Children, Rm. 10128, Elm Wing, 555 University Ave., Toronto ON M5G 1X8; fax (416) 813-6255; farzin.forooghian@utoronto.ca

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Uveitis is a common entity encountered in ophthalmology practice. It can be classified on the basis of location (anterior uveitis, intermediate uveitis, posterior uveitis, or panuveitis) and type of inflammation (granulomatous or nongranulomatous). The differential diagnosis for patients with uveitis includes an extensive list of infectious and noninfectious agents. These conditions may be confined to the eye, or they may represent an ocular manifestation of systemic disease. Uveitis confined to the eye is typically idiopathic; in fact, idiopathic anterior uveitis is the most common form of uveitis.[1] Prospective studies have shown, however, that a systemic association can be found in 26% of uveitis patients.[2] The challenge for the clinician is knowing what questions to ask, what signs (ocular and systemic) to look for, what diagnostic tests to order, and what unnecessary diagnostic tests to avoid.

An accurate and detailed history and physical examination are the first and most important steps in evaluating a patient with uveitis. This forms the pretest likelihood of disease. On the basis of the results of the history and physical examination, the ophthalmologist must decide which diagnostic tests will either support or exclude the diagnosis. Deciding which diagnostic tests to order in the setting of uveitis can be one of the more difficult tasks in ophthalmology. A nonselective approach to testing is costly and inefficient. Furthermore, this approach can lead to misinterpretation of false-positive results and possibly endanger patients. According to Bayes' theorem, diagnostic tests are most helpful when the pretest likelihood of the disease is about 50%.[3] Diagnostic testing is not useful if there is a particularly high or low pretest likelihood of disease. The ophthalmologist must know when to test and when not to test. When testing is to be done, the ophthalmologist must know which diagnostic tests are appropriate and which tests are not. This can be a daunting task, considering the many diseases that can present with uveitis.

When a patient with uveitis presents with ocular or systemic signs suggestive of a systemic syndrome, the choice of diagnostic testing is made easier. The difficulty lies with the uveitis patient who lacks signs or symptoms of a systemic disorder. In this situation, when uveitis may either be the presenting sign of a systemic disease or simply represent idiopathic uveitis, many ophthalmologists employ a routine battery of screening tests.

The impetus for this study came from our observations of the wide range of screening tests routinely ordered for uveitis patients. While working at various teaching hospitals, we have had a unique opportunity to observe the testing patterns of ophthalmology residents, fellows, and staff, and in our experience, not all diagnostic tests ordered in the evaluation of uveitis patients are appropriate. The purpose of our study was to identify current testing patterns in Canada and to make recommendations for appropriate tests based on evidence from a review of the literature. To our knowledge, such a study has not been done before.

Methods

The Canadian National Uveitis Survey (version 2004) was developed by the authors at the University of Toronto. The survey aimed to determine under what circumstances and with what tests ophthalmologists investigate a patient with anterior uveitis. The questionnaire began by asking respondents several demographic questions; it then posed 5 different scenarios in which a patient with anterior uveitis presents without any ocular or systemic clues to the diagnosis. These scenarios depicted the most common presentations of uveitis, and in our experience, represented situations where ordered diagnostic testing is most diverse.

Research ethics board approval was obtained from St. Michael's Hospital, Toronto, before the survey was mailed to 1196 ophthalmology residents, fellows, and staff physicians listed in the 2004 membership directory of the Canadian Ophthalmological Society. The full version of the survey is available as supplementary data on the *CJO* Web site at http://pubs.nrc-cnrc.gc.ca/cjo/cjo.html.

Results

We received 498 responses (42%). Demographic information provided by survey respondents is presented in Table 1. We asked respondents under what circumstances they felt investigation of anterior uveitis was warranted, and the results are shown in Table 2.

When given the scenario of nongranulomatous anterior uveitis (NGAU) in an adult patient without signs or symptoms to suggest a medical diagnosis, survey respondents chose the following 7 investigations most frequently (in descending order, Fig. 1A): human leukocyte antigen (HLA)-B27 test (346, 69.5%); complete blood count (CBC), blood chemistries, and (or) urinalysis (324, 65.1%); syphilis serology (280, 56.2%); erythrocyte sedimentation rate (ESR, 260, 52.2%); chest radiographs (255, 51.2%); antinuclear antibodies (ANA, 218, 43.8%); and sacroiliac joint radiographs (204, 41.0%).

For the scenario of granulomatous anterior uveitis (GAU) in an adult patient without signs or symptoms to suggest a medical diagnosis (Fig. 1B), the 7 investigations most frequently chosen were chest radiographs (381, 76.5%); syphilis serology (367, 73.7%); CBC,

Table 1—Demographics of respondents to the 2004 Canadian National Uveitis Survey (*n* = 498)

Respondents	No. (and %)
Academic rank	
Resident	40 (8.0)
Fellow	11 (2.2)
Staff (Full-time, academic teaching hospital)	81 (16.3)
Staff (Part-time, academic teaching hospital)	122 (24.5)
Staff (Non-academic site)	240 (48.2)
No response	4 (0.8)
Date of residency completion	
1960–1970	53 (10.6)
1971–1980	95 (19.1)
1981–1990	152 (30.5)
1991–2000	114 (22.9)
2001–2010	78 (15.7)
No response	6 (1.2)
Percentage of practice based on uveitis	
Greater than 75%	1 (0.2)
25%–75%	17 (3.4)
Less than 25%	443 (89.0)
None	31 (6.2)
No response	6 (1.2)
Location of practice	
Large city (population > 1 000 000)	190 (38.2)
Small city (population 300 000–1 000 000)	144 (28.9)
Town (population < 300 000)	158 (31.7)
No response	6 (1.2)

Table 2—Respondents to Canadian National Uveitis Survey who would investigate anterior uveitis, by presentation (*n* = 498)

Presentation	No. (and %)
Unilateral AU, first episode, moderate (cells and flare only)	19 (3.8)
Unilateral AU, recurrent, moderate (cells and flare only)	311 (62.5)
Unilateral AU, first episode, severe (synechiae, hypopyon, fibrin)	239 (48.0)
Unilateral AU, recurrent, severe (synechiae, hypopyon, fibrin)	420 (84.3)
Unilateral AU, with granulomatous features, first episode	344 (69.1)
Unilateral AU, with granulomatous features, recurrent	413 (82.9)
Bilateral AU, first episode	329 (66.1)
Bilateral AU, recurrent	413 (82.9)

Note: AU = anterior uveitis.

blood chemistries, and (or) urinalysis (352, 70.7%); tuberculin skin test (purified protein derivative (PPD), 323, 64.9%); serum angiotensin-converting enzyme (ACE, 300, 60.2%); ESR (277, 55.6%); and HLA-B27 (217, 43.6%).

When respondents were asked to indicate the test they would order first for investigating possible sarcoidosis in a patient with anterior uveitis (Fig. 1C), the most frequently chosen answers were chest radiographs (372, 74.7%); serum ACE (316, 63.5%); CBC, blood chemistries, and (or) urinalysis (230, 46.2%); biopsy of inflamed lacrimal gland, conjunctiva, or nodule (148, 29.7%); serum or urine calcium (143, 28.7%); serum lysozyme (68, 13.7%); and computed tomography (CT) scan of the chest (62, 12.5%).

When investigating anterior uveitis in a child without signs or symptoms to suggest a medical diagnosis (Fig. 1D), the 7 most frequent investigations chosen were CBC, blood chemistries, and (or) urinalysis (248, 49.8%); rheumatoid factor (RF, 223, 44.8%); ANA (215, 43.2%); ESR (189, 38.0%); HLA-B27 (170, 34.1%); chest radiographs (106, 21.3%); and PPD (92, 18.5%).

For investigating possible syphilis in a patient with anterior uveitis (Fig. 1E), most survey respondents would first order a Venereal Disease Research Laboratories (VDRL) or rapid plasma reagin (RPR) and a confirmatory test (fluorescent treponemal antibody absorption (FTA-ABS) or microhemagglutination-Treponema pallidum (MHA-TP), 375, 75.3%). Other tests chosen, in descending order of frequency, were VDRL or RPR only (57, 11.5%); chest radiograph (14, 2.8%); and lumbar puncture (7, 1.4%).

To determine whether patterns of uveitis testing differed according to the length of time respondents had been in practice, we compared the total number of tests ordered against year of completing residency (Fig. 2). Using a series of χ^2 analyses, we found that the average number of tests differed significantly ($p < 0.001$) across years of completing residency for 4 of the scenarios (NGAU, GAU, sarcoidosis investigation, and anterior uveitis in a child). Newer graduates ordered more tests than older graduates.

Next we compared referral to another specialist against year of completing residency (Fig. 3). With χ^2 analysis, we found that the percentage of respondents who said they would refer to another specialist differed significantly ($p < 0.001$) across years of completing residency for all 5 scenarios (NGAU, GAU, sarcoidosis, anterior uveitis in a child, and syphilis). Newer graduates were less likely to refer a patient to another specialist for investigation.

Interpretation

According to a recent study,[4] uveitis specialists agree that investigation of anterior uveitis is warranted under the following circumstances: (1) bilateral inflammation; (2) recurrent, moderate, or severe inflammation with granulomatous features; and (3) systemic symptoms or signs suggesting an underlying medical diagnosis. The majority of our survey respondents reported investigating anterior uveitis under these circumstances (Table 2). The lowest yield in diagnosis was in the single-episode,

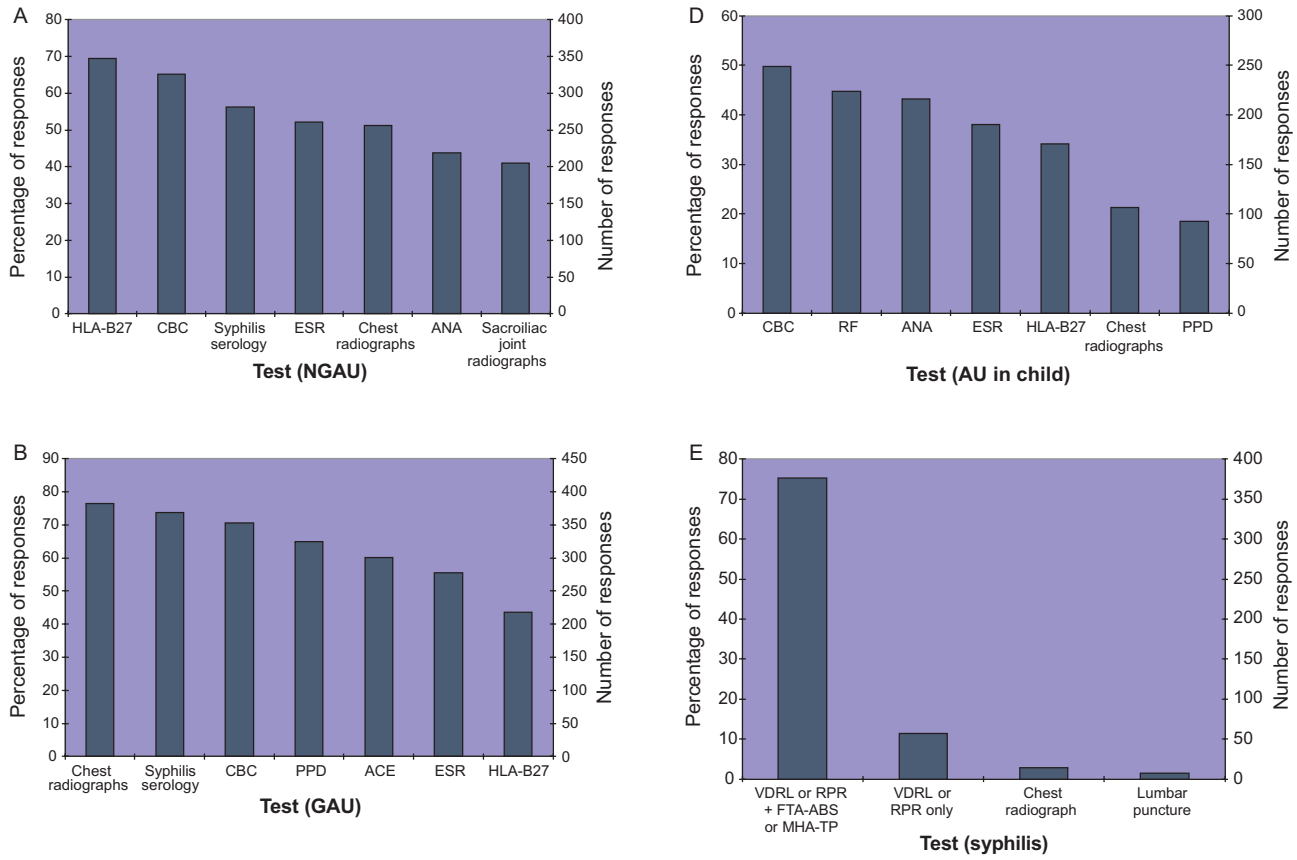

Fig. 1—Tests chosen most frequently by respondents in the 2004 Canadian National Uveitis Survey. Five scenarios for investigating anterior uveitis (AU) with no symptoms or signs to suggest a medical diagnosis were nongranulomatous (A), granulomatous (B), suspected sarcoidosis in a patient with AU (C), AU in a child (D), and suspected syphilis in a patient with AU (E). Definitions and details of tests are given in the text. CBC = CBC, blood chemistries, and (or) urinalysis.

mild, unilateral anterior uveitis without systemic signs or symptoms that resolves easily with topical therapy. Anterior uveitis that presents in this way need not be investigated, and it is reassuring to see that only 19 (3.8%) survey respondents reported investigating this benign presentation (Table 2). Only half of respondents reported investigating a first episode of unilateral, severe (synechiae, hypopyon, fibrin), NGAU (Table 2). This is the typical presentation of HLA-B27-associated anterior uveitis.[5] Approximately 50% of anterior uveitis is associated with HLA-B27.[6] Patients with anterior uveitis who are positive for HLA-B27 have been shown to have a greater number of visual complications and poorer visual outcome, as well as a higher recurrence rate and requirement of more aggressive therapeutic strategies to control inflammation.[7] The majority of HLA-B27-positive patients already have or will go on to develop a seronegative spondyloarthropathy,[8,9] and anterior uveitis is frequently the first indication of a previously undiagnosed HLA-B27-associated extraocular disease.[9] It has been recommended that all HLA-B27-postive patients with anterior uveitis be referred to a rheumatologist.[10,11] Ankylosing spondylitis (AS) is the most common of the diseases associated with HLA-B27. Recent advances in diagnosis and therapy have led some authors to suggest treatment for AS even before radiologic signs are evident,[12] although currently there is no evidence to suggest that earlier treatment improves

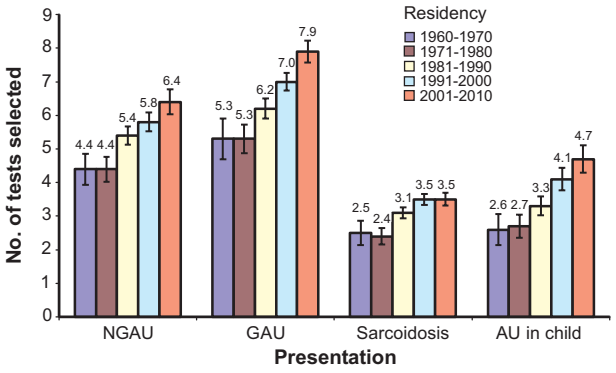

Fig. 2—Mean number of tests (and SE) that would be ordered for 4 types of uveitis investigation, by respondent's year of completion of residency, $p < 0.001$, $n = 498$.

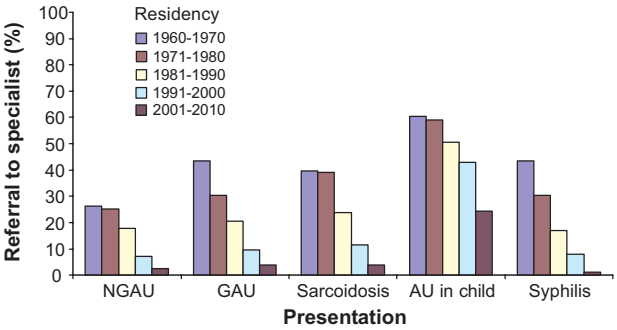

Fig. 3—Percentage of respondents who would refer patients to another specialist, by respondent's year of completion of residency, for 5 types of uveitis investigation, $p < 0.001$, $n = 498$.

disease outcome. On the basis of the reasoning outlined here, we recommend HLA-B27 typing in all patients with moderate or severe NGAU. Patients who are HLA-B27 positive should be followed closely for development of extraocular disease. Options for this include an annual review of systems, educating patients about symptoms of extraocular disease, or referral to a rheumatologist.

One of the most common investigations ordered for NGAU and GAU in both adults and children was CBC, blood chemistries and (or) urinalysis (Figs. 1A–1D). We could not find evidence in the literature supporting the use of these tests in the investigation of patients with anterior uveitis. These tests may be abnormal in a variety of conditions unrelated to anterior uveitis, and it is our opinion that they are too nonspecific to be of value in the routine investigation of patients with anterior uveitis. These tests should be reserved for instances when systemic disease is suspected on the basis of the history and (or) ophthalmic or physical examination. For example, these tests would be useful in a patient with anterior uveitis and accompanying fever, weight loss, and fatigue to help rule out renal disease from connective tissue disease (e.g., Wegener's granulomatosis, systemic lupus erythematosus (SLE)) or tubulointerstitial nephritis and uveitis (TINU) syndrome.

Another test that survey respondents reported ordering commonly was ESR (Figs. 1A, 1B, 1D). C-reactive protein (CRP), a similar test for generalized inflammation, was also commonly ordered. Although 134 survey respondents (26.9%) reported ordering CRP in cases of NGAU, 155 (31.1%) in cases of GAU, and 89 (17.9%) in cases of anterior uveitis in a child, we could find no evidence supporting the use of ESR or CRP in the investigation of uveitis. In our experience, these tests are too nonspecific to be of diagnostic value in uveitis testing and are not recommended.

Two tests that were also frequently ordered for the investigation of anterior uveitis in adults according to our survey were ANA and RF. Slightly more than 40% of respondents reported ordering ANA for patients with NGAU (Fig. 1A), and 195 (39.2%) respondents ordered ANA for patients with GAU. ANA is often used to diagnose SLE, which is a rare cause of uveitis, especially anterior uveitis. When SLE is the cause of uveitis, it is often associated with other ocular findings as well (scleritis, keratitis, retinal vasculitis). Rosenbaum and Wernick[13] estimated the prevalence of uveitis among SLE patients to be 0.1%, and they performed a Bayesian analysis that did not support the use of ANA as a routine test in uveitis. RF was reported as being routinely ordered in the investigation of NGAU and GAU by 184 (37.0%) and 156 (31.3%) of our survey respondents, respectively. RF is often used in the diagnosis of rheumatoid arthritis (RA). When RA is associated with ocular inflammation, it is often in the form of scleritis or keratitis, rather than uveitis. According to Rosenbaum,[14] tests for ANA and RF are frequently inappropriately obtained for evaluating patients with uveitis. We do not recommend the use of ANA or RF in the routine investigation of anterior uveitis. Anterior uveitis can be a complication of juvenile rheumatoid arthritis (JRA). In patients with JRA who develop bilateral and chronic anterior uveitis, RF is rarely positive whereas ANA titres are frequently positive.[15] One of 3 factors used to determine uveitis screening recommendations for children with JRA is the presence of ANA reactivity.[16] Surprisingly, survey respondents reported ordering RF more frequently than ANA in a child with anterior uveitis. A subset of HLA-B27 patients with JRA can develop uveitis as well,[15] and this test is probably also useful for a child with anterior uveitis. HLA-B27 was ordered by only a third of our survey respon-

dents when investigating a child with anterior uveitis. Studies have demonstrated that although 42% to 53% of adult uveitis are classified as idiopathic,[17] this percentage drops to 24% to 25% in children, with JRA being the most common cause of uveitis.[18,19] On the basis of these reports, we believe that every child with anterior uveitis should have an ANA and HLA-B27 test. Subsequent testing in greater detail would depend on results from a detailed history and ophthalmic or physical examination. Children with anterior uveitis and a positive ANA or HLA-B27 should be referred to a rheumatologist to rule out JRA.

Once believed to be a significant cause of uveitis, tuberculosis (TB) is now estimated to have a prevalence of only 0.2% to 1.0% in the uveitis population.[2,13] Although the report by Rosenbaum and Wernick did not support the use of routine PPD testing for TB, it did recommend PPD testing in patients with symptoms or signs of TB or a clinical examination suggestive of a granulomatous process, or in those patients whose symptoms have not responded to systemic corticosteroid therapy.[13] We recommend PPD testing in patients whose anterior uveitis has granulomatous features (mutton-fat keratic precipitates, iris nodules) and especially in patients who have emigrated from a TB-endemic region or have had previous TB exposure. This agrees with two-thirds of our survey respondents who reported ordering PPD in patients with GAU.

Sarcoidosis is a multisystem granulomatous disease that commonly affects the lungs, lymph nodes, skin, and eyes. Ocular involvement has been reported in approximately 25% of patients with sarcoidosis (range 1%–64%).[20–22] Within a general population of patients with uveitis, 3% to 7% have sarcoidosis.[20] Chest radiography is a good start for detecting sarcoidosis not only because the chest radiograph is believed to be abnormal in up to 95% of patients at some point during the course of the disease,[21] but also because sarcoid patients have distinctive patterns of pulmonary involvement that help differentiate this disease from other systemic granulomatous diseases such as TB.[23] Chest radiography was the most common investigation ordered by our survey respondents in this scenario. Serum ACE and serum lysozyme are often elevated in patients with ocular sarcoidosis.[24,25] When investigating a patient for sarcoidosis, over 60% of respondents would order serum ACE and almost 1 in 7 would order serum lysozyme. In patients with uveitis, serum ACE has been reported to have a sensitivity of 73% to 84% and a specificity of 83% to 95% for detecting sarcoidosis.[26,27] Although serum ACE is recommended for the investigation of sarcoid,[28] serum lysozyme has been shown to have limited diagnostic usefulness due to a lower sensitivity and specificity.[26,28] Another one of the top 7 investigations ordered for sarcoidosis by almost a third of our survey respondents was serum or urine calcium (Fig. 1C). Hypercalciuria and hypercalcemia are rare in sarcoidosis, and measuring serum or urine calcium has limited diagnostic value in sarcoid.[28]

The diagnosis of sarcoid becomes more challenging when the initial chest radiograph and serum ACE are normal or equivocal. Biopsy will often provide the definitive diagnosis, but in the absence of inflamed tissue, a blind biopsy is controversial.[28] Other diagnostic options include CT scan of the chest and whole-body gallium 67 scanning, yet only 1 in 8 survey respondents reported ordering CT scan of the chest, and less than 1 in 11 (45, 9.0%) reported ordering a gallium scan. CT scan of the chest has been shown to be valuable in diagnosing sarcoid in elderly women with an otherwise normal work-up,[29] whereas whole-body gallium scanning in combination with serum ACE increases the diagnostic specificity without affecting sensitivity in patients with clinically suspicious ocular sarcoidosis who have normal or equivocal chest radiographs.[27] Whole-body gallium scanning has the advantage of detecting distinctive patterns of gallium uptake in sarcoidosis, such as the panda sign of lacrimal and salivary gland involvement.[27] Lacrimal and salivary glands that show increased gallium uptake represent suitable sites for biopsy,[28] and simplified office-based approaches to biopsy of the palpebral lobe of the lacrimal gland[30] and the minor salivary glands[31] have been described. Transbronchial lung biopsy has also proven to be of value in the diagnosis of suspected ocular sarcoidosis.[32] When the initial investigation of sarcoidosis is normal or equivocal and the clinical suspicion is still high, a whole-body gallium scan or CT scan of the chest with or without biopsy is appropriate.

Syphilis has long been known as the great masquerader, and a recent report has shown it to be the sole cause of uveitis in 4.3% of uveitis patients.[33] Recognition of syphilis is crucial because it is a curable form of uveitis. Ocular involvement with syphilis occurs in the secondary and tertiary stages of the disease, when the VDRL screening test can often be negative. In as many as 39% of patients with ocular syphilis, the VDRL test may be negative while the confirmatory FTA-ABS test remains positive.[34] When investigating for ocular syphilis, a confirmatory test (FTA-ABS or MHA-TP) is recommended in addition to the VDRL or RPR screening tests. According to uveitis experts,[3,14] testing for syphilis is recommended as a routine investigation in virtually all patients with uveitis. In this

context, over half of our survey respondents reported investigating for syphilis in adult patients with NGAU and almost three-quarters in GAU (Fig. 1A, 1B). When investigating for syphilis, three-quarters of survey respondents also reported ordering a confirmatory test in addition to a screening test.

On the basis of our review of the literature, we have developed recommendations for investigating anterior uveitis (summarized in Table 3). We have incorporated a minimalist approach to increase the diagnostic yield of testing. Anterior uveitis should be investigated if it is bilateral, chronic, or recurrent. A one-time unilateral episode of anterior uveitis need only be investigated if it is moderate or severe. If the patient is positive for HLA-B27, then referral to a rheumatologist may be warranted. We are in agreement with Rosenbaum[14,35] that a chest radiograph and syphilis testing (VDRL and FTA-ABS) should be ordered as part of a routine work-up for most cases of severe, chronic, recurrent, or bilateral anterior uveitis. If the anterior uveitis has granulomatous features and the patient has risk factors for TB exposure, then a PPD is useful. If the chest radiograph and (or) clinical history suggest sarcoidosis, then a serum ACE is warranted. If the diagnosis of sarcoidosis is still equivocal, whole-body gallium scanning or CT scanning is useful. The ultimate confirmation of sarcoid diagnosis is based on biopsy, which may be guided by whole-body gallium scanning or CT scan of the chest. Children with anterior uveitis should also have a serum ANA and HLA-B27 done, as well as referral to a rheumatologist if these tests are positive. Any further testing beyond these investigations is warranted on the basis of the patient's systemic symptoms, other ocular findings (e.g., scleritis, keratitis, posterior segment findings) and the physician's clinical suspicion.

Our survey results showed a diverse range of investigations ordered by Canadian ophthalmologists for anterior uveitis. Many of these investigations had low diagnostic yield and are not recommended in the routine investigation of anterior uveitis. One of the limitations of our survey may have been that the option to order no testing at all was not offered. In most of the clinical situations we presented, however, some testing was required. The only situation that did not need to be investigated was a first episode of unilateral benign anterior uveitis, and only 3.8% of respondents reported investigating this clinical situation. Thus, it is unlikely that this survey biased respondents toward ordering more tests.

Newer graduates are ordering more tests and are less likely to refer a patient with anterior uveitis to another specialist for investigation. The fact that newer graduates are less likely to refer patients to another specialist for investigation may be reassuring, since an ophthalmologist is better suited to investigate anterior uveitis than are other specialists and is less likely to order nonspecific testing. This reassurance is tempered by the fact that according to our results newer graduates are ordering more tests, and many of these tests are unnecessary. Hence, the results of the Canadian National Uveitis Survey highlight the importance of education on uveitis testing, especially in Canadian residency programs. Future directions of our research will include cost analysis and Bayesian analysis of common investigations, as well as the possible formation of a Canadian uveitis working group to establish and teach formal testing guidelines. We also plan to re-administer this survey in several years to see whether testing patterns have changed as a result of implemented education programs.

Table 3—Recommended routine investigations for anterior uveitis

Anterior uveitis (nongranulomatous), in an adult, first episode, unilateral and mild
• does not require investigation
Anterior uveitis (nongranulomatous), in an adult, unilateral and either moderate or severe
• HLA-B27
Anterior uveitis (nongranulomatous), in an adult, recurrent, chronic, or bilateral, and either moderate or severe
• Chest radiographs
• VDRL + FTA-ABS
• HLA-B27
Anterior uveitis with granulomatous features, in an adult
• Chest radiographs
• VDRL + FTA-ABS
• PPD*
• Serum ACE
Initial investigations for suspected sarcoidosis
• Chest radiographs
• Serum ACE
Additional investigation for suspected sarcoidosis if work-up is normal or equivocal and clinical suspicion is still high
• Whole-body gallium scan ± biopsy, or
• Chest CT scan ± biopsy
Anterior uveitis in a child
• ANA
• HLA-B27
Additional and more directed testing should be made on the basis of a detailed history and an ophthalmic and physical examination

Note: HLA-B27, human leukocyte antigen-B27; VDRL, Venereal Disease Research Laboratories; FTA-ABS, fluorescent treponemal antibody absorption; PPD, purified protein derivative; ACE, angiotensin-converting enzyme; CT, computed tomography; ANA, antinuclear antibodies.

*PPD especially necessary if patient has risk factors for TB exposure or comes from an endemic area, or if uveitis has not responded to conventional therapy.

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