Comments and Responses

The Racist Patient

TO THE EDITOR: Twenty-five years ago, I faced a situation similar to Jain's (1). My experience involved a horrid anti-Semite; I was raised with Holocaust survivors.

I finally asked my attending to be reassigned. He said that I was a physician and must fulfill my responsibilities to my patient regardless of who and what he was. My personal feelings were immaterial. My attending was right.

Jain's patient wanted his diabetes treated properly in a hospital that would not provide his medications. His request was legitimate, and Jain's offer to use Mr. R.'s own insulin was a pathetic reply to Mr. R.'s call for Jain to solve the problem. Jain missed an opportunity to heal and win over a fellow man.

Mitchel Galishoff, MD
Valley Medical & Surgical Clinic, PC
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Potential Conflicts of Interest: *Employment:* Self-employed in private practice.

Reference

1. Jain SH. The racist patient. Ann Intern Med. 2013;158:632. [PMID: 23588752]

TO THE EDITOR: As an Indian American born in the United States, I can sympathize with Jain's feelings (1). I have witnessed and been involved in similar situations but have never lost my cool in the presence of the patient. Any frustrations were expressed in private among my colleagues and family.

I agree that Jain should have apologized for the remark, but the patient should have been aware that his comments were inappropriate and hospital administrators should have followed a protocol for dealing with such situations. I am still at a loss on how to deal with comments about how good my English skills are or questions about how I like living in the United States. I usually just respond that I was born here and move on. As physicians, we are taught to take the high road, but we don't ever let patients know that they are inappropriate for fear of offending them.

I believe that Dr. Galishoff's comment about using the patient's own insulin was not appropriate. In these days of restricted hospital formularies, having patients continue to receive their own medications from home is an accepted practice. What alternative is there? I am continually faced with the challenge of the hospital formulary having drug X, whereas the patient's insurance covers only drug Y.

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Potential Conflicts of Interest: *Employment:* University of Texas MD Anderson Cancer Center; *Royalties:* UpToDate; *Payment for development of educational presentations:* SHMConsults.com.

Reference

1. Jain SH. The racist patient. Ann Intern Med. 2013;158:632. [PMID: 23588752]

TO THE EDITOR: As I read Jain's article (1), I felt considerable anxiety and concern for his situation. However, I believe that institutions have major responsibilities to their patients, providers, and staff to proactively anticipate, address, and resolve these incidents, because conflicts in health care are common. Leaving clinicians to their own coping mechanisms, guidance from mentors, and peer support relationships is not adequate.

Bonds between patients and providers are based on mutual trust and the ability of both parties to communicate candidly and respectfully. Relationships can be strained because of severe illness; confrontational and destructive behaviors, as Jain experienced; substance abuse; nonadherence; and failed expectations. Further, some patients represent a danger to themselves and their providers.

I propose the dangerous, drug-seeking, and difficult patient (3D) model, an interdisciplinary committee approach with oversight by the clinical chief executive (2, 3), to address such patients. Staff members review and discuss each case and prepare an action plan and, if appropriate, an enforceable patient contract. Although the goal is to avoid abandoning or discharging the patient, the contract can place firm restrictions. Such a system reduces adverse interactions, and providers become more accepting of treating difficult patients. The 3D model has been shown to decrease costs of care and emergency visits (2).

An institution can fulfill its obligation to its providers, staff, and patients through a program, such as the Coordinated Care Review Board, to identify problem patients, limit negative behaviors, and promote a culture where mutual respect is valued and practiced.

David A. Nardone, MD
Hillsboro, Oregon

Potential Conflicts of Interest: None disclosed.

References

1. Jain SH. The racist patient. Ann Intern Med. 2013;158:632. [PMID: 23588752]
2. Portland VA runs unique program to deal with difficult patients. From the Field. Spring 2002:1. Accessed at www.ethics.va.gov/docs/bkissues/Newsletter_2002Spring_From_The_Field.pdf on 21 April 2013.
3. Carlson MJ, Baker LH. Difficult, dangerous, and drug seeking: the 3D way to better patient care. Am J Public Health. 1998;88:1250-2. [PMID: 9702164]

TO THE EDITOR: Jain (1) wrote that Mr. R. spat out, "Why don't you go back to India!" That was horrible, and it brought back painful memories of Jain's childhood. As a Japanese American who grew up with taunts in the shadow of World War II, I wholly sympathize with Jain's hurt. However, I do not sympathize with his response, "Why don't you leave our [expletive] hospital?"

When Mr. R. launched his racist insult, did Jain know his mental status? Did the patient have dementia, depression, or sleep deprivation? Isn't it our responsibility to know these things? Did Jain's cursing response add to his stature as a person or to that of our profession?

I know that Jain and I are just human and that an on-the-spot analysis might be beyond us, but couldn't Jain have simply said, "That's unacceptable, Mr. R."?

Michael Nakao, MD
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Albany, New York

Potential Conflicts of Interest: None disclosed.

Reference

1. Jain SH. The racist patient. Ann Intern Med. 2013;158:632. [PMID: 23588752]

IN RESPONSE: I want to clarify misconceptions that may have arisen as a result of my essay. I am in no way proud of how I reacted to Mr. R.'s incendiary comments. If I were faced with a similar situation in the future, I hope that I would react differently using one of the techniques or responses suggested. Angry or foul language has no place in sound clinical interactions between physicians and patients.

I wrote the essay to raise the fact that, as clinicians, many of us are unprepared for degrading interactions with patients. They happen, and they hurt. We bring our own baggage to work every day. As it did in my case, this baggage—in the form of a childhood that exposed me to racism—influences the quality of our interactions with our patients. It imposes real, often unexpected limits in our ability to do our jobs.

I want to thank the editors for publishing my essay and spurring rich dialogue about professional conduct, patient conduct, and race and racism in medical practice.

Sachin H. Jain, MD, MBA
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Potential Conflicts of Interest: None disclosed.

IN RESPONSE: In "On Being a Doctor," we accept essays that reflect the condition of doctoring and provoke thoughtful discussion of controversial aspects of our professional lives. Such acceptance never implies endorsement of a particular behavior or alignment with any expressed philosophy.

The provocative discussion generated by Dr. Jain's essay (1) has been particularly robust; the 4 letters selected for publication represent a spectrum of that discussion. As editors, we found Dr. Jain's piece most appealing for its central message: We are all human, and even physicians make mistakes. Our reaction to his egregious behavior, that we hope we would not make the same mistake, is the sort of reflection that we wanted this piece to engender, rather than mere judgment. Although our aim is to provoke, Dr. Jain's is to elicit empathy.

Drs. Sahai and Nakao express this sentiment and offer their hoped-for responses. Dr. Nardone's more formulized course of action is a welcome suggestion. Finally, Dr. Galishoff's letter recalls the compelling story by Richard Selzer (2) wherein religion and profession collide in a Jewish physician caring for an abusive patient even while contending with a torrent of emotion about to boil over.

Although we can in no way condone Dr. Jain's action, we commend him for his courage in telling his story and thank him for stimulating such frank discussion.

Christine Laine, MD, MPH
Editor in Chief

Michael A. LaCombe, MD
Associate Editor

References

1. Jain SH. The racist patient. Ann Intern Med. 2013;158:632. [PMID: 23588752]

2. Selzer R. Brute. In: Laine C, LaCombe MA, eds. The Last Half Hour of the Day. Philadelphia: ACP Pr; 2008:41-4.

Observation

Benjamin Babington and the Quadricuspid Aortic Valve

Background: Authors of medical journal articles often provide historical context in their introductions but rarely include more than a cursory summary of premodern events. This is unfortunate, because a thoughtful investigation of the history of a disease may reveal equally interesting (and instructive) tales of discovery. However, such tales may be clouded by misattribution and miscitation—errors that, when propagated through the years, may transform falsehoods into de facto historical truths.

Objective: To examine the case of the initial description of the quadricuspid aortic valve.

Methods and Findings: After imaging a quadricuspid aortic valve in our echocardiography laboratory, we reviewed the literature on this rare congenital anomaly. At least 10 international medical journal reports identify "Balington" as the first person to describe the quadricuspid aortic valve (**Table**). Each attribution can be traced to a

Table. **References to Dr. Babington and "Balington"**

Attribution to Dr. Babington

Babington BG. Case of cyanosis dependent patent ductus arteriosus. London Medical Gazette. 1847;4:822-3.

D'Almagro MD. [Clinical and pathological study of the persistent ductus arteriosus]. Paris: Bignoux; 1862.

Dilg J. [A contribution to the knowledge of rare cardiac abnormalities following a case of congenital left-sided conus stenosis]. Arch Pathol Anat Physiol Klin Med. 1883;91:193-259.

Misattribution to "Balington"

Robicsek F, Sanger PW, Daugherty HK, Montgomery CC. Congenital quadricuspid aortic valve with displacement of the left coronary orifice. Am J Cardiol. 1969;23:288-90. [PMID: 5772948]

Nalbantgil I, Cagatay G. Letter: quadricuspid aortic valve. Chest. 1975;67:623-4. [PMID: 1126210]

Holm H, Jacobson S, Reul GJ, Stainback RF. Quadricuspid aortic valve. Tex Heart Inst J. 2004;31:450-1. [PMID: 15745305]

Patel RJ, Patel JN, Zakir RM, Apovian J, Stakhyra I, Dabu L, et al. Quadricuspid aortic valve with four equal cusps in a quinquagenarian. Am J Geriatr Cardiol. 2005;14:333-4. [PMID: 16276133]

Mahal AS, Gupta P, Hunter WJ, Sugimoto J. Rare type C quadricuspid aortic valve presenting with aortic stenosis and aortic insufficiency. The Internet Journal of Cardiology. 2010;8. Accessed at http://archive.ispub.com/journal/the-internet-journal-of-cardiology/volume-8-number-1/rare-type-c-quadricuspid-aortic-valve-presenting-with-aortic-stenosis-and-aortic-insufficiency.html#sthash.uaZ8tzjW.dpbs on 28 June 2013.

Youn YJ, Kim JY, Harn SW, Lee JW, Sung JK, Ahn SG, et al. A case of quadricuspid aortic valve with aortic regurgitation. J Cardiovasc Ultrasound. 2010;18:70-1. [PMID: 20706574]

Gouveia S, Martins JD, Costa G, Paramés F, Freitas I, Rebelo M, et al. [Quadricuspid aortic valve—10-year case series and literature review]. Rev Port Cardiol. 2011;30:849-54. [PMID: 22054808]

Jagannath AD, Johri AM, Liberthson R, Larobina M, Passeri J, Tighe D, et al. Quadricuspid aortic valve: a report of 12 cases and a review of the literature. Echocardiography. 2011;28:1035-40. [PMID: 21854429]

Shankar B, Mehrotra R, Bansal M, Singh G, Kasliwal RR. Quadricuspid aortic valve. J Assoc Physicians India. 2012;60:54-5. [PMID: 23409427]

Tai JM, Laghari AH, Gill CT. Quadricuspid aortic valve with aortic regurgitation: a rare echocardiographic finding. BMJ Case Rep. 2013;2013. [PMID: 23349171]

1969 case report by Robicsek and colleagues (1), which cites an unspecified 1862 *London Medical Gazette* article as "Balington. *London M. Gaz*, July 1862. Quoted by Dilg."

We were unable to document the existence of the 1862 *London Medical Gazette* article or find a reference to Balington in Dilg's 1883 literature review of rare cardiac defects (2). However, Dilg references an 1862 book by Manuel D'Almagro (3) that notes a report by "Babington" (not Balington) of a 4-leaflet aortic valve. D'Almagro provides the correct citation—an 1847 *London Medical Gazette* article—for Babington's original case report. In that case report, the physician at London's renowned Guy's Hospital describes the postmortem findings of patent ductus arteriosus and a 4-leaflet aortic valve in a cyanotic 34-year-old woman "with phlegmatic temperament and stunted development" (4).

Thus, Robicsek and colleagues seem to have incorrectly reported Babington's name and the year of his original case report. Although the latter error seems to have originated in a 19th-century miscitation, the misspelling of Babington's name seems to have resulted from a modern typographical error, by either the authors or their publisher. Unfortunately, the mistake in correctly identifying Babington has been repeated for several decades by an international cadre of authors writing about the quadricuspid aortic valve in a wide spectrum of medical journals. This self-perpetuating error has had a more consequential effect—depriving an honorable medical academician of his due respect.

It is ironic that Babington's early description of hereditary hemorrhagic telangiectasia, now eponymously recognized as the Osler–Weber–Rendu syndrome, and his invention of the laryngoscope have also been largely overlooked. Even at his death in 1866, many associates recognized that Babington had not received adequate credit for his contributions to medicine. According to an obituary in the *Medical Times and Gazette*, Dr. Babington "was not, like his colleagues Drs. Bright and Addison, so fortunate as to be the first to point out a special pathological condition which should afterward bear his name" (5).

Discussion: The first description of the quadricuspid aortic valve was made by Dr. Benjamin Guy Babington, not the mysterious (and fictional) "Dr. Balington." The tale that we have uncovered—of a recurrent citation error contributing to Babington's anonymity—should be one of redemption. Thus, we humbly propose that the quadricuspid aortic valve hereafter be designated the "Babington valve." However, we recognize that enshrining someone as often overlooked as Babington in the eponymous echelons of medical history may prove onerous. Therefore, we would settle for this being merely a cautionary tale—one that results in the correct spelling of his name going forward.

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Potential Conflicts of Interest: *Employment:* New York University School of Medicine.

References

1. Robicsek F, Sanger PW, Daugherty HK, Montgomery CC. Congenital quadricuspid aortic valve with displacement of the left coronary orifice. Am J Cardiol. 1969;23:288-90. [PMID: 5772948]

2. Dilg J. [A contribution to the knowledge of rare cardiac abnormalities following a case of congenital left-sided conus stenosis]. Arch Pathol Anat Physiol Klin Med. 1883;91:193-259.

3. D'Almagro MD. [Clinical and pathological study of the persistent ductus arteriosus]. Paris: Bignoux; 1862.

4. Babington BG. Case of cyanosis dependent patent ductus arteriosus. London Medical Gazette. 1847;4:822-3.

5. Obituary. Benjamin Guy Babington, M.D., F.R.S. Medical Times and Gazette. 1866;1:429-30.

(*continued on next page*)

CORRECTIONS

Correction: Medical Management to Prevent Recurrent Nephrolithiasis in Adults

In a recent guideline (1), the heading and some of the data in the fourth columns of **Appendix Tables 5** and **6** were incorrect. The corrected tables appear below.

This has been corrected in the online version.

Reference

1. Fink HA, Wilt TJ, Eidman KE, Garimella PS, MacDonald R, Rutks IR, et al. Medical management to prevent recurrent nephrolithiasis in adults: a systematic review for an American College of Physicians Clinical Guideline. Ann Intern Med. 2013;158:535-43.

Appendix Table 5. **Strength of Evidence for Prevention of Stone Recurrence: Dietary Intervention Trials**

Intervention	Stone Recurrence Type	Trials, *n*	Patients, *n*	Relative Risk (95% CI)	Risk of Bias*	Directness†	Precision‡	Consistency§	Strength of Evidence
Increased fluid intake vs. control	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	220	0.45 (0.24–0.84)	High	Direct	Precise	NA	Low
	Radiographic	1	21	0.15 (0.02–1.07)	Medium	Direct	Imprecise	NA	Insufficient
Reduced soft-drink intake vs. control	Symptomatic	1	1009	0.83 (0.71–0.98)	Medium	Direct	Precise	NA	Low
	Composite	0	–	–	–	–	–	–	Insufficient
	Radiographic	0	–	–	–	–	–	–	Insufficient
Decreased animal protein intake vs. control	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	115	1.00 (0.52–1.91)	Medium	Direct	Imprecise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Increased dietary fiber intake vs. control	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	120	1.18 (0.66–2.12)	Medium	Direct	Imprecise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Low-protein, low-sodium, and normal- to high-calcium diet vs. low-calcium diet	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	120	0.52 (0.29–0.95)	Low	Direct	Precise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Low–animal protein, high-fiber diet vs. control diet	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	99	5.88 (1.39–24.92)	Medium	Direct	Precise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Extensive evaluation and tailored diet vs. limited evaluation and uniform diet	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	242	0.32 (0.14–0.74)	High	Direct	Precise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient

NA = not applicable.
* Rated low, medium, or high on the basis of whether the design and conduct of the studies for a given treatment comparison and outcome indicate good internal validity.
† Indicates whether results reflect a single direct link between the intervention of interest and the outcome and rated either direct or indirect.
‡ Indicates the degree of certainty surrounding an effect estimate of a given outcome and rated either precise or imprecise, with a precise estimate being one that allowed a clinically meaningful conclusion.
§ Indicates whether the included studies found a similar direction of effect and rated consistent; inconsistent; or, in cases where only 1 study was evaluated, unknown or NA.

Appendix Table 6. **Strength of Evidence for Prevention of Stone Recurrence: Pharmacologic Intervention Trials**

Intervention	Stone Recurrence Type	Trials, *n*	Patients, *n*	Relative Risk (95% CI)	Risk of Bias*	Directness†	Precision‡	Consistency§	Strength of Evidence
Thiazide vs. placebo or control	Symptomatic	1	51	1.04 (0.39–2.80)	Medium	Direct	Imprecise	NA	Insufficient
	Composite	6	314	0.53 (0.41–0.68)	Medium	Direct	Precise	Consistent	Moderate
	Radiographic	0	–	–	–	–	–	–	Insufficient
Citrate vs. placebo or control	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	4	250	0.25 (0.14–0.44)	Medium	Direct	Precise	Consistent	Moderate
	Radiographic	1	50	0.95 (0.62–1.44)	Medium	Direct	Imprecise	NA	Low
Allopurinol vs. placebo or control	Symptomatic	1	72	0.36 (0.11–1.19)	Medium	Direct	Imprecise	NA	Low
	Composite	2	204	0.59 (0.42–0.84)	Medium	Direct	Precise	Consistent	Moderate
	Radiographic	1	72	1.07 (0.16–7.10)	Medium	Direct	Imprecise	NA	Insufficient
AHA vs. placebo	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	0	–	–	–	–	–	–	Insufficient
	Radiographic	2	304	0.81 (0.18–3.66)	Medium	Direct	Imprecise	Consistent	Insufficient
Magnesium vs. placebo	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	82	0.65 (0.37–1.16)	Medium	Direct	Imprecise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Thiazide plus citrate vs. thiazide	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	100	0.94 (0.52–1.68)	Medium	Direct	Imprecise	NA	Low
	Radiographic	0	–	–	–	–	–	–	Insufficient
Thiazide plus allopurinol vs. thiazide	Symptomatic	0	–	–	–	–	–	–	Insufficient
	Composite	1	50	0.79 (0.18–3.49)	Medium	Direct	Imprecise	NA	Insufficient
	Radiographic	0	–	–	–	–	–	–	Insufficient

AHA = acetohydroxamic acid; NA = not applicable.
* Rated low, medium, or high on the basis of whether the design and conduct of the studies for a given outcome or comparison indicated good internal validity.
† Indicates whether results reflect a single direct link between the intervention of interest and the outcome and rated either direct or indirect.
‡ Indicates the degree of certainty surrounding an effect estimate of a given outcome and rated either precise or imprecise, with a precise estimate being one that allowed a clinically meaningful conclusion.
§ Indicates whether the included studies found a similar direction of effect and rated consistent; inconsistent; or, in cases where only 1 study was evaluated, unknown or NA.

Correction: Targeting Interleukin-5 in Refactory and Releasing Churg-Strauss Syndrome

The **Table** of a recent letter (1) contained incorrect data. The corrected table is being reprinted here. The statements and the numbers in the text as well as the overall message of the letter are not affected.

This has been corrected in the online version.

Reference

1. Moosig F, Gross WL, Herrmann K, Bremer JP, Hellmich B. Targeting interleukin-5 in refactory and releasing Churg-Strauss syndrome. Ann Intern Med. 2011;155:341-3. [PUMID: 21893636]

Table. **Patient Characteristics and Outcomes**

Patient	Sex	Age, *y*	Disease Duration, *y*	Organ Involvement During Course*	Major Progressive Manifestations at Baseline	Prior Treatments (Cumulative CYC Dose, *g*)	Treatment at Baseline	Activity State	BVAS†
1	Male	68	20	E, L, H, S, A, GI, B	Sinusitis, arthralgia, myalgia, constitutional symptoms	IVIG, IFN-α, MTX (78)	MTX, 22.5 mg/wk, plus GC, 20 mg/d	Relapsing	Week 0: 3 Week 32: 0
2	Female	56	7	E, L, H, S, A, B	Sinusitis, arthralgia, constitutional symptoms	MTX, ETA, LEF (71)	MTX, 25 mg/wk, plus LEF, 20 mg/d, or GC, 20 mg/d	Relapsing	Week 0: 8 Week 32: 0
3	Male	73	1	E, S, P, A	Polyneuropathy, sinusitis	MTX (4)	CYC-B plus GC, 20 mg/d	Refractory	Week 0: 11 Week 32: 0
4	Male	53	1	E, L, H, P, GI, A, B	GC-sensitive atrial fibrillation	AZA, MTX (18)	MTX, 30 mg/wk, plus GC, 20 mg/d	Relapsing	Week 0: 6 Week 32: 0
5	Female	56	3	E, L, H, S, P, GI, B	Colitis, polyneuropathy	AZA, MTX	AZA, 150 mg/d, plus GC, 25 mg/d	Relapsing	Week 0: 15 Week 32: 0
6	Male	70	1	E, L, P, C	Polyneuropathy, apoplexia	MTX (9)	CYC-O plus GC, 17.5 mg/d	Refractory	Week 0: 15 Week 32: 0
7	Female	63	6	E, L, H, P, A, B	Pericardial effusion, arthralgia, myalgia	AZA, MTX	AZA, 150 mg/d, plus GC, 20 mg/d	Relapsing	Week 0: 7 Week 32: 0
8	Male	78	6	Ey, H, P, A, B	Polyneuropathy	AZA, MTX (28)	CYC-B plus GC, 12.5 mg/d	Refractory	Week 0: 3 Week 32: 0
9	Female	43	16	E, H, P, B	Sinusitis	AZA, LEF, CyA, MTX, MMF (10)	MTX, 20 mg/wk, plus GC, 12.5 mg/d	Relapsing	Week 0: 3 Week 32: 0
10 (withdrew	Female	61	6	E, L, Ey, H, S, A, B	Otorrhea, pericardial effusion	MTX, IFN-α	MTX, 20 mg/wk, plus GC, 12.5 mg/d	Relapsing	Week 0: 11 Week 12: 0

A = joints; AE = adverse event; AZA = azathioprine; B = constitutional symptoms; BVAS = Birmingham Vasculitis Activity Score; C = central nervous system; CyA = cyclosporine A; CRP = C-reactive protein; CYC = cyclophosphamide; CYC-B = pulse cyclophosphamide; CYC-O = oral cyclophosphamide; E = ear, nose, throat; Eos = eosinophils/μL; ESR = erythrocyte sedimentation rate; ETA = etanercept; Ey = eyes; GC = glucocorticoid; GI: gastrointestinal; H = heart; IFN-α = interferon-α; IVIG = intravenons immunoglobulin; L = lung; LEF = leflunomide; MMF = mycophenolatemofetil; MTX = methotrexate; P = peripheral nervous system; PVC = premature ventricular contraction; RTX = rituximab; S = skin; SAE = severe adverse event.

* Organ involvement is given according to Disease Extent Index nomenclature.

† Laboratory findings are given at baseline and at wk 32 for patients 1 to 9 and at wk 12 for patient 10.

‡ Summary of all registered adverse events. Events are classified as AEs or SAEs on the basis of their causal relationship to the study (1 = not study related; 2 = possibly study related), study week in which the event occurred, and the event severity grade. Causal relationship is determined by the investigators' opinions after consensus conference. Severity grading is given according to the Common Terminology Criteria for Adverse Events, version 4.0.

§ Description of relapses that occurred after switching to MTX maintenance therapy. Time to relapse is noted in days.

Table—Continued

GC, *mg/d*†	FEV_1, %†	Eos Count†	CRP Level, *mg/L*†	ESR, *mm/h*†	AEs and SAEs‡	Relapse After Stopping Mepolizumab Therapy§
Week 0: 15 Week 32: 4	Week 0: 86 Week 32: 78	Week 0: 232 Week 32: 50	Week 0: 0.4 Week 32: 0.6	Week 0: 76 Week 32: 28	AE: eczema, 1, week 2, 1; edema, 1, week 5, 1; swelling (left hand), 1, week 9, 1; cold, 1, week 22, 1; oral sore, 2, week 12–24, 2; cold, 2, week 37, 2	1 minor, day 315; exacerbation of sinusitis, worsening of asthma Laboratory values: BVAS, 7; GC, 24 mg/d; Eos, 136; MTX, 22.5 mg/wk
Week 0: 20 Week 32: 12.5	Week 0: 82 Week 32: 88	Week 0: 71 Week 32: 13	Week 0: 0.1 Week 32: 0.3	Week 0: 42 Week 32: 14	AE: urinary tract infection, 2, week 2–3, 2; cold, 2, week 23, 2 SAE: anaphylactic shock, 1, week 24, 3 (probably due to cefuroxime administration)	1 minor, day 314; constitutional symptoms, worsening of asthma Laboratory values: BVAS, 3; GC, 2 mg/d; Eos, 144; LEF, 30 mg/d
Week 0: 20 Week 32: 7.5	Week 0: 55.4 Week 32: 59	Week 0: 124 Week 32: 18	Week 0: 0.5 Week 32: 0.2	Week 0: 8 Week 32: 2	AE: dentalgia, 1, week 24, 2; eczema, 1, week 24–30, 2	
Week 0: 20 Week 32: 5	Week 0: 96 Week 32: 91	Week 0: 13 Week 32: 43	Week 0: 0 Week 32: 0	Week 0: 2 Week 32: 2	AE: dentalgia, 1, week 8–16, 2; diarrhea, 1, week 24, 1; oral erosions, 2, week 1–8, 1	
Week 0: 25 Week 32: 3	Week 0: 95 Week 32: 94	Week 0: 4867 Week 32: 4	Week 0: 2.8 Week 32: 0.1	Week 0: 28 Week 32: 10	AE: abdominal pain, 2, week 1, 1 SAE: norovirus infection, 1, week 7, 2 (due to norovirus outbreak in family); macular hole, 1, week 60, 4; (due to hospitalization/surgery); actinic keratosis, 1, week 36, 2 (due to local excision surgery)	1 major, day 134; aggravation of polyneuropathy, recurrence of PVC Laboratory values: BVAS, 13; GC, 35 mg/d; Eos, 88; CYC-B 6 × 1 g
Week 0: 17.5 Week 32: 5	Week 0: 80 Week 32: 66	Week 0: 57 Week 32: 11	Week 0: 6.7 Week 32: 1	Week 0: 24 Week 32: 11		
Week 0: 20 Week 32: 4	Week 0: 70 Week 32: 63	Week 0: 210 Week 32: 64	Week 0: 0.6 Week 32: 1	Week 0: 20 Week 32: 33	AE: wound infection, 2, week 8–20, 2; otitis media, 2, week 13–14, 2; eczema, 1, week 0–12, 1; bronchitis, 2, week 2, 2 SAE: cerebral microembolism, 1, week 0–1, 1 (due to hospitalization/hypertension, lipidemia, obesity); tendon rupture, 1, week 2, 3 (due to hospitalization/surgery/quinolone, high cumulative prednisolone dose); acute abdomen, 1, week 24, 4 (due to hospitalization, surgery/after elective hernia surgery, obesity); pulmonary embolism, 1, week 21, 3 (due to postoperative complication of hernia surgery, history of pulmonary embolism and thrombosis)	1 major, day 138; Eos, alveolitis, sinusitis, worsening of asthma Laboratory values: BVAS, 13; GC, 4 mg/d; Eos, 1068; CYC-B 7 × 1 g, plus CYC-O, 150 mg/d for 3 mo, plus RTX (4 × 750 mg) 1 minor, day 28; endonasal activity, nasal discharge, sinusitis Laboratory values: BVAS, 6; GC, 7.5 mg/d; Eos, 27; MTX, 25 mg/wk 1 minor, day 328; bloody nasal discharge, myalgia, arthralgia Laboratory values: BVAS, 6; GC, 7 mg/d; Eos, 65; MTX, 25 mg/d
Week 0: 12.5 Week 32: 4	Week 0: 79 Week 32: 80	Week 0: 172 Week 32: 25	Week 0: 0 Week 32: 4	Week 0: 28 Week 32: 32	AE: cold, 2, week 28–29, 1	
Week 0: 12.5 Week 32: 4	Week 0: 72 Week 32: 77	Week 0: 128 Week 32: 7	Week 0: 0 Week 32: 0	Week 0: 10 Week 32: 8	AE: herpes zoster, 2, week 5–7, 2; cold, 2, week 22–23, 1	1 minor, day 223; constitutional symptoms Laboratory values: BVAS, 3; GC, 15 mg/d; Eos, 21; MTX, 20 mg/wk
Week 0: 12.5 Week 12: 3	Week 0: 49 Week 12: 55	Week 0: 575 Week 12: 552	Week 0: 0 Week 12: 1.6	Week 0: 2 Week 12: 10	AE: herpes simplex, 2, week 4–8, 2 SAE: de Quervain thyroiditis/subfebrile temperature, 1, week 12, 2	