

# British Association of Dermatologists living guideline for managing people with alopecia areata 2024

Matthew J Harries<sup>1,2</sup>, Anna Ascott<sup>3</sup>, Leila Asfour<sup>1</sup>, Paul Farrant<sup>3</sup>, Gordon Hale<sup>4</sup>, Susan Holmes<sup>4,5</sup>, Amy Johnson<sup>6,7</sup>, Victoria ML Jolliffe<sup>8</sup>, Ahmed Kazmi<sup>9,10</sup>, Abby E Macbeth<sup>11</sup>, Andrew G Messenger<sup>12</sup>, Ali Noor<sup>6</sup>, Anita Takwale<sup>13</sup>, Andrew R Thompson<sup>14,15</sup>, Maria Hashme<sup>16</sup>, Lina Manounah<sup>16</sup>, M Firouz Mohd Mustapa<sup>16</sup> and Alina M Constantin<sup>16</sup> on behalf of the British Association of Dermatologists' Clinical Standards Unit

<sup>1</sup>Salford Royal Hospital, Northern Care Alliance NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UK

<sup>2</sup>Centre for Dermatology Research, Faculty of Biology, Medicine and Health, University of Manchester & NIHR Biomedical Research Centre, Manchester, UK

<sup>3</sup>University Hospitals Sussex NHS Foundation Trust, Sussex, UK

<sup>4</sup>NHS Greater Glasgow and Clyde, Glasgow, UK

<sup>5</sup>University of Glasgow, Glasgow, UK

<sup>6</sup>Patient representative

<sup>7</sup>Alopecia UK, Shipley, UK

<sup>8</sup>Queen Mary University of London, Barts and The London School of Medicine and Dentistry, London, UK

<sup>9</sup>The Royal London Hospital, London, UK

<sup>10</sup>Sinclair Dermatology, Melbourne, VIC, Australia

<sup>11</sup>Norfolk and Norwich University Hospitals NHS Trust, Norwich, UK

<sup>12</sup>University of Sheffield, Sheffield, UK

<sup>13</sup>Gloucestershire Hospitals NHS Foundation Trust, Gloucester, UK

<sup>14</sup>Cardiff and Vale University Health Board and School of Psychology, University of Cardiff, Cardiff, UK

<sup>15</sup>British Psychological Society, Leicester, UK

<sup>16</sup>British Association of Dermatologists, Willan House, London, UK

Correspondence: Matthew J. Harries. Email: [guidelines@bad.org.uk](mailto:guidelines@bad.org.uk); [matthew.harries@nca.nhs.uk](mailto:matthew.harries@nca.nhs.uk)

## Lay summary

Alopecia areata (AA) is a long-term condition that can occur in both children and adults. AA can appear as patches of baldness on the scalp. Sometimes, nail growth is also affected. Hair on other parts of the body may also fall out, such as the beard, eyebrows and eyelashes. Total loss of scalp hair is called alopecia totalis (AT). Complete loss of scalp, facial and body hair is called alopecia universalis (AU).

The British Association of Dermatologists gathered a group of experts in managing people of all ages with AA. The group consisted of 11 dermatologists, 1 psychologist, 2 people with AA and a team with expertise in preparing guidelines. This group of experts reviewed relevant studies published until 19 October 2023. Using the evidence, the group produced recommendations using rigorous standards for guideline development.

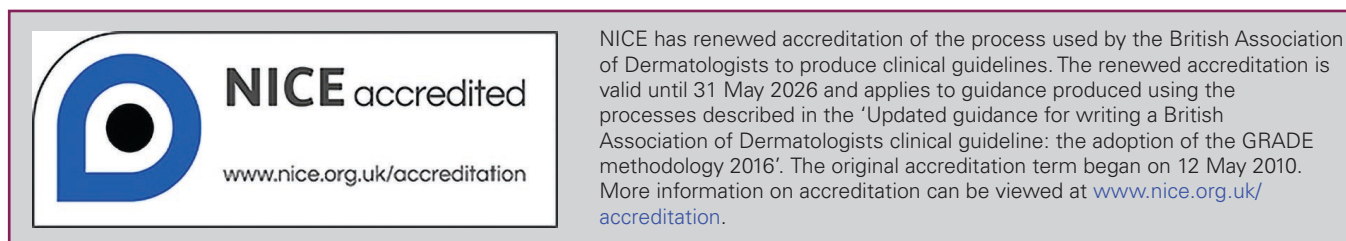
The guideline development group produced 49 recommendations for management of people with AA. They also made 7 recommendations for future research and suggested 11 audit points for hospitals.

Based on the guideline, the group prepared an updated patient information leaflet. The leaflet is available on the British Association of Dermatologists' website (<https://www.skinhealthinfo.org.uk/condition/alopecia-areata>).

Accepted: 22 September 2024

© The Author(s) 2024. Published by Oxford University Press on behalf of British Association of Dermatologists. All rights reserved. For commercial re-use, please contact [reprints@oup.com](mailto:reprints@oup.com) for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact [journals.permissions@oup.com](mailto:journals.permissions@oup.com).

Produced in 2024 by the British Association of Dermatologists (BAD).



This is a living guideline prepared for the British Association of Dermatologists (BAD) Clinical Standards Unit, which includes the Therapy & Guidelines subcommittee. Members of the Clinical Standards Unit who have been involved are SL Chua (Chair, Therapy & Guidelines subcommittee), W Gorav, R Ramessur, M Hashme (Information Scientist), S Tawfik (Guideline Research Fellow), LS Exton (Senior Guideline Research Fellow), AM Constantin (Guideline Research Fellow) and MF Mohd Mustapa (Director of Clinical Standards).

## 1.0 Purpose and scope

The overall objective of the current iteration of this living guideline is to provide up-to-date, evidence-based recommendations for the management of alopecia areata (AA) in adults ( $\geq 18$  years of age), children (0–12 years of age) and young people (13–17 years of age). The document aims to:

- offer an appraisal of all relevant literature up to 19 October 2023, focusing on any key developments
- address important, practical clinical questions relating to the primary guideline objective
- provide guideline recommendations and, if appropriate, research recommendations.

The guideline is presented as a detailed review with highlighted recommendations for practical use in all appropriate community and hospital settings (see Section 3.0), in addition to a patient information leaflet (available on the BAD website: [www.skinhealthinfo.org.uk](http://www.skinhealthinfo.org.uk)).

## 2.0 Methodology

This guideline has been developed using the BAD's recommended methodology.<sup>1</sup> Further information can be found in Appendix K (see [Supporting Information](#)) with reference to the AGREE II instrument ([www.agreetrust.org](http://www.agreetrust.org))<sup>2</sup> and GRADE<sup>3</sup> (Appendix D; see [Supporting Information](#)). While the recommendations were developed for anticipated implementation in the UK National Health Service (NHS), they could equally be adapted in other healthcare systems, internationally, acknowledging different countries' health systems, including their priorities, legislation, drug availabilities, funding and policies.

The guideline development group (GDG) consisted of eight consultant dermatologists (MJH, PF, SH, VMLJ, AK,

AEM, AGM, AT), three dermatology residents (AA, LA, GH), one consultant clinical psychologist (ART), two patient representatives (AJ, AN) and a technical team consisting of an information scientist (MH), two guideline research fellows (LM, AMC) and a project manager (MFMM) providing methodological and technical support.

The GDG established one systematic review question pertinent to the scope of the guideline and a set of outcome measures of importance to patients, ranked according to the GRADE methodology<sup>4</sup> (Section 2.1; and Appendix A; see [Supporting Information](#)).

A systematic literature search of the MEDLINE, Embase and Cochrane databases was conducted by the technical team to identify key articles pertaining to AA up to 19 October 2023; the search terms and the search strategies are detailed in the Supporting Information (Appendix L). Additional references relevant to the topic were also identified from citations in the reviewed literature. Data extraction and critical appraisal, data synthesis, evidence summaries, lists of excluded studies and the PRISMA flow diagram were prepared by the technical team. The overall certainty of evidence from the studies included in the quantitative review was graded according to the GRADE system (high, moderate, low or very low certainty).

In making these recommendations, all GDG members have evaluated the entire dataset obtained from the living systematic review of the literature pertaining to the clinical question of interest (Section 2.1).

The recommendations were formulated following discussions with the entire GDG, including patient representatives, considering all factors that would affect the strength of the evidence according to the GRADE approach (i.e. balance between desirable and undesirable effects, quality of evidence, patient values and preferences and resource allocation). All GDG members contributed towards drafting and/or reviewing the narratives and information in the guideline and appendices in the Supporting Information documents. When insufficient evidence from the literature was available, informal consensus was reached based on the experience of the GDG.

The summary of findings with forest plots (Appendix B), tables Linking Evidence To Recommendations (LETR) (Appendix C), GRADE evidence profiles indicating the certainty of the evidence (Appendix D), summary of comparative studies included in the quantitative and qualitative synthesis (Appendix E), summary of included within-patient studies (Appendix F), narrative findings from non-comparative studies (Appendix G), PRISMA flow diagram (Appendix H), risk-of-bias analysis (Appendix I) and the

list of excluded studies (Appendix J) are detailed in the Supporting Information.

The strength of recommendation is expressed by the wording and symbols shown in Table 1.

Applicability of the recommendations to clinical practice is outlined in Sections 4.0 and 7.0. A 'patient values and preferences' section and further discussion of the included evidence, treatment options, practical and economic considerations and service provision are also featured in the LETR narrative (Appendix C).

## 2.1 Clinical questions and outcomes

The GDG established a systematic review question pertinent to the scope of the guideline. See Appendix A for the full living systematic review protocol.

The GDG also established a set of outcome measures of importance to people with AA, which were agreed by the patient representatives and ranked according to the GRADE methodology.<sup>4</sup> Outcomes ranked 7, 8 or 9 are critical for decision making; those ranked 4, 5 or 6 are important, but not critical for decision making; and those ranked 1, 2 or 3 are the less important for decision making.

**Systematic review question:** In people with AA what are the clinical effectiveness and safety of interventions compared with each other, placebo or no treatment?

### Outcomes

#### Critical

- Improvement in quality of life and psychological well-being (anxiety/social anxiety/depression) (9)
- Improvement in hair regrowth from baseline (e.g.  $\geq 75\%$ )<sup>§</sup> (8)
- Improvement in facial (i.e. eyelash, eyebrow, beard) hair regrowth from baseline (8)
- Serious adverse effects (i.e. grade 3–4 adverse events, investigator defined) (8)
- Long-term sustainability of hair regrowth (8)

#### Important

- Patient's self-assessment (6)
- Disease-specific physician's assessment (6)
- Improvement in hair regrowth from baseline (e.g.  $\geq 50\%$ ) (6)

- Physician's Global Assessment (6)
- Minor adverse effects (i.e. grade 1–2 adverse events) (5)

#### Less important

- Improvement in hair regrowth from baseline (e.g.  $\geq 25\%$ ) (3)

<sup>§</sup>Where reported, data on 90–100% improvement of hair regrowth from baseline are to be extracted additionally and separately.

## 3.0 Summary of recommendations

The GDG set out to provide an up-to-date and evidence-based approach to optimize the management of people with AA, factoring in patient values and preferences.

The following recommendations and ratings were agreed upon unanimously by all members of the GDG, including patient representatives. For further information on the wording used for recommendations and strength of recommendation ratings, see Section 2.0. The GDG is aware of the lack of high-certainty evidence for some of these recommendations, therefore strong recommendations with an asterisk (\*) are based on the available evidence, as well as consensus and specialist experience. Good practice point (GPP) recommendations are derived from informal consensus.

The GDG considered the evidence and provided recommendations in the context of clinical practice within the UK's NHS. However, the GDG acknowledged that some recommended interventions may not be widely available. The evidence for recommendations is based on the studies listed. For further details please refer to the discussion in the LETR (Appendix C).

All recommendations that employ the term 'people' refer to **adults**, **children** and **young people**. The terms 'male', 'female', 'men' and 'women' used throughout the guideline refer to the sex assigned at birth.

The AA severity definitions used in this living guideline are based primarily on the extent of scalp hair loss, with **limited (mild)** hair loss representing 1–20% scalp involvement, **moderate** hair loss representing 21–49% scalp involvement and **severe** hair loss representing 50–100% scalp involvement.<sup>5</sup> However, the grade of severity should be increased if additional clinical features are present (see Section 6.2). **Rapidly progressive** AA is defined here as progressive

**Table 1** The strength of recommendation

| Strength                                                               | Wording                                                                  | Symbol | Definition                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------|--------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strong</b> recommendation <i>for</i> the use of an intervention     | 'Offer' (or similar, e.g. 'use', 'provide', 'take', 'investigate', etc.) | ↑↑     | Benefits of the intervention outweigh the risks; most patients would choose the intervention while only a small proportion would not; for clinicians, most of their patients would receive the intervention; for policymakers, it would be a useful performance indicator                                                            |
| <b>Weak</b> recommendation <i>for</i> the use of an intervention       | 'Consider'                                                               | ↑      | Risks and benefits of the intervention are finely balanced; most patients would choose the intervention, but many would not; clinicians would need to consider the pros and cons for the patient in the context of the evidence; for policymakers it would be a poor performance indicator where variability in practice is expected |
| No recommendation                                                      |                                                                          | ⊖      | Insufficient evidence to support any recommendation                                                                                                                                                                                                                                                                                  |
| <b>Strong</b> recommendation <i>against</i> the use of an intervention | 'Do not offer'                                                           | ↓↓     | Risks of the intervention outweigh the benefits; most patients would <i>not</i> choose the intervention while only a small proportion would; for clinicians, most of their patients would <i>not</i> receive the intervention                                                                                                        |

scalp hair loss of sudden onset, associated with increased hair fall and generalized positive hair pull test and/or trichoscopic features of active disease (e.g. exclamation-mark hairs, black dots, etc.).<sup>6</sup>

The definitions of psychological distress used in this living guideline should be based on the outcome of clinical assessment and judgement. However, this can be supported by the use of mental health patient-reported outcome measures or screening tools (Appendix O; see [Supporting Information](#)) that have psychometrically reliable cutoff points.

## General management

**R1 (GPP)** Undertake a full history for people with AA, including the site and type of AA, disease extent, disease stability, age of onset, speed of progression, triggering factors, quality of life, psychological and psychosocial impact, maximum severity experience and personal and family history of other autoimmune diseases.

**R2 (GPP)** Manage the expectations of people with AA by conveying that any therapeutic modality is not always effective.

**R3 (GPP)** Offer all people with AA medical photography<sup>7</sup> as a baseline record of severity and consider further photography if there is a significant change and at the start of a new treatment course.

**R4 (GPP)** Perform the Severity of Alopecia Tool (SALT) assessment (Appendix N; see [Supporting Information](#)) routinely in people with AA with scalp involvement as a validated outcome measure to assess treatment response over time.

**R5 (GPP)** Exercise caution when treating people with AA with Fitzpatrick V and VI skin tones with topical and/or intralesional corticosteroids and contact immunotherapy, due to the increased risk of skin depigmentation with corticosteroid treatment and the risk of developing vitiligo, as well as localized skin hyper- or hypopigmentation, with contact immunotherapy. These patients need specific counseling prior to treatment regarding potential skin pigmentary changes.

**R6 (↑↑)** Assess\* and monitor people's quality of life and level of psychological distress associated with living with AA. Brief screening tools that can be used include Patient Health Questionnaire-4 (PHQ-4)<sup>8</sup> or Patient Health Questionnaire-9 (PHQ-9),<sup>9,10</sup> Generalized Anxiety Disorder 7 (GAD7),<sup>11</sup> Mood and Feelings Questionnaire – short [MFQ(S)]<sup>12</sup> and Dermatology Life Quality Index (DLQI).<sup>13</sup> Disease-specific measures include the Alopecia Areata Symptom Impact Scale (AASIS)<sup>14</sup> and Alopecia Areata Patient Priority Outcome (AAPPO).<sup>15</sup>

**R7 (GPP)** Discuss with people with AA the psychosocial impact of living with the condition.

**R8 (GPP)** Provide people with AA, at the time of diagnosis, with a patient information leaflet (e.g. <https://www.skin-healthinfo.org.uk/condition/alopecia-areata>), actively engage them in their treatment management pathway to facilitate

shared decision making and direct them to appropriate patient support organizations (e.g. Alopecia UK).

**R9 (GPP)** Offer people with AA the opportunity to participate in a long-term safety registry [e.g. the Global Registry of Alopecia areata disease Severity and treatment Safety (GRASS)-UK; [www.bad.org.uk/research-journals/research/grass-uk](http://www.bad.org.uk/research-journals/research/grass-uk)].

**R10 (GPP)** Refer people with suspected AA to a healthcare professional experienced in managing the condition (secondary care specialist or general physician with enhanced role, GPwER) if:

- the condition is severe
- the condition is progressing rapidly
- there is diagnostic uncertainty
- the condition has a significant psychosocial impact
- the condition is not responding to topical treatment.

Further advice on referral pathways can be found on the British Association of Dermatologists' website page: 'Dermatology Referral Management Guidelines' ([www.bad.org.uk/referrals](http://www.bad.org.uk/referrals)), which provides an accessible national clinical resource intended to support clinicians in primary, community and secondary care services.

## Wigs and other nonpharmacological therapies

**R11 (↑↑)** Offer wigs (including toppers) to people with AA whose quality of life is likely to benefit from their use. Due to the lifespan of products, it is suggested that patients are offered a minimum of two synthetic wigs or one human hair wig (if meeting clinical criteria) per year in accordance with the Charter for Best Practice for NHS Wig Provision.<sup>16</sup>

**R12 (GPP)** Acknowledge that wigs and other nonpharmacological therapies can be as significant in improving patient quality of life as other treatments.

**R13 (GPP)** Suggest that people with AA explore other headwear and camouflage options, such as hats, scarves, turbans, makeup, hair fibres, powders and sprays, permanent makeup and skin micropigmentation. The national hair loss charity, Alopecia UK, has comprehensive information about products and services on its website ([www.alopecia.org.uk](http://www.alopecia.org.uk)).

## Topical corticosteroids

**R14 (↑↑)** Offer\* a potent or very potent topical corticosteroid once daily for 3–6 months to **people** with AA who have **scalp** hair loss, as the first-line treatment in primary or secondary care.

**R15 (↑)** Consider a potent or very potent topical corticosteroid treatment regimen of 6 weeks' treatment and 6 weeks' break, followed by a further 6 weeks' treatment cycle in **children and young people** with **scalp** AA.

**R16 (GPP)** Discuss with people with AA the amount of topical corticosteroids to be used, the site of application and

the safety of a potent or very potent topical corticosteroid when used correctly.

**R17 (GPP)** Reassess the use of topical corticosteroids every 3–6 months in people with AA, to assess for improvement and cutaneous side-effects.

### Intralesional corticosteroids

**R18 (↑↑)** Offer\* intralesional triamcinolone acetonide (2.5–10 mg mL<sup>-1</sup>) as a first-line option to **adults** with **limited (mild)-to-moderate** AA.

**R19 (↑)** Consider intralesional triamcinolone acetonide in **adults** with **severe** AA on a case-by-case basis.

**R20 (↑)** Consider intralesional triamcinolone acetonide in **older children and young people** with **limited (mild)-to-moderate** AA on a case-by-case basis.

**R21 (↑)** Consider intralesional triamcinolone acetonide in people with eyebrow or beard alopecia on a case-by-case basis.

**R22 (GPP)** Exercise caution when treating people with AA with intralesional corticosteroids due to the risk of localized skin or fat atrophy, particularly when treating cosmetically sensitive sites or if previous episodes of atrophy have occurred.

**R23 (GPP)** Consider an initial starting concentration of 5 mg mL<sup>-1</sup> for intralesional triamcinolone acetonide as standard practice in all **adults** with AA. Adjusted concentrations may be required depending on response or risk of side-effects.

**R24 (GPP)** Consider a time interval of 6–12 weeks for intralesional triamcinolone acetonide injections for people with AA and ensure that the injections are evenly spaced within the patch and patch margins (i.e. 0.1 mL per 1 cm<sup>2</sup>).

**R25 (GPP)** Consider options (e.g. topical local anaesthetics, cold spray or distraction/vibration) to reduce pain when injecting intralesional triamcinolone acetonide in people with AA.

### Systemic corticosteroids

**R26 (↑)** Consider a course of oral corticosteroids (e.g. prednisolone 0.5 mg kg<sup>-1</sup> per day tapering over 6–12 weeks) in people with **rapidly progressive** AA. Intravenous methylprednisolone 500 mg daily for 3 days may be an alternative to oral corticosteroids in adults, although this treatment is not used widely in the UK.

**R27 (↑)** Consider a course of oral corticosteroids (e.g. prednisolone 0.5 mg kg<sup>-1</sup> per day tapering over 6–12 weeks) in people with **moderate-to-severe** AA.

**R28 (↑)** Consider concurrent topical treatment (e.g. potent topical corticosteroid, minoxidil 5% topical solution) in people with **moderate-to-severe** AA, to reduce the risk

of relapse. Taper corticosteroid use over 6–12 weeks with the aim of maintaining response thereafter with the topical agent.

**R29 (↑)** Consider concurrent treatment with corticosteroid-sparing agents (e.g. azathioprine, methotrexate, ciclosporin) in people with **moderate-to-severe** AA, to reduce the risk of relapse. Taper corticosteroid use over 6–12 weeks with the aim of maintaining response thereafter with the steroid-sparing agent.

**R30 (GPP)** Acknowledge that some people treated with oral corticosteroids may be unable to maintain a treatment response as the dose is reduced or stopped. The side-effect profile of oral corticosteroids usually precludes longer-term maintenance therapy, particularly if higher doses are required to maintain an effect.

### Contact immunotherapy

**R31 (↑↑)** Offer diphenylcyclopropenone (DPCP), where available, to people with **moderate-to-severe** AA.

**R32 (↑)** Consider 'home DPCP' (where available, under hospital guidance) in people with AA who can conduct the procedure correctly and safely at home, for their easy access and convenience.

**R33 (↑↑)** Use DPCP or squaric acid dibutyl ester (SADBE) as a sensitizing agent in people with AA.

**R34 (↓↓)** Do not use dinitrochlorobenzene (DNCB) as a sensitizing agent in people with AA due to the risk of mutagenicity.

### Light and laser

**R35 (↑)** Consider topical and oral psoralen plus ultraviolet A (PUVA) in people with AA in selected cases depending on the risk–benefit ratio. For example, this option may be more acceptable in people with darker skin tones (e.g. Fitzpatrick V and IV) who would like a localized treatment option, and to avoid the risk of skin depigmentation with topical immunotherapy. If used, consider shorter treatment cycles, application to smaller areas and a finite treatment duration.

Θ There is insufficient evidence to recommend the following light and laser interventions to people with AA:

- narrowband ultraviolet B (NB-UVB)
- ultraviolet A1 (UVA1)
- laser-assisted delivery of topical agents (such as minoxidil and corticosteroids) with fractionated, ablative CO<sub>2</sub> laser or fractionated nonablative erbium laser
- low-level (light) laser therapy (LLLT) devices
- pulsed infrared diode laser
- photodynamic therapy (PDT)
- Nd:YAG laser
- excimer lamp
- other laser treatments (e.g. 311-nm titanium–sapphire laser, nonablative 1550-nm erbium glass fractional laser, ablative fractional 2940-nm Er:YAG laser).



## Systemic immunosuppression

**R36 (↑)** Consider ciclosporin, azathioprine or methotrexate as monotherapy or in combination with oral corticosteroids as treatment options in people with **moderate-to-severe** AA, balancing benefits, risks of adverse effects, and patient risk factors.

**R37 (GPP)** Consider mycophenolate mofetil in adults with **moderate-to-severe** AA, balancing benefits, risks of adverse effects and patient risk factors.

**R38 (GPP)** Consider ciclosporin in people with **rapidly progressive** AA for a limited course (i.e. 3–6 months), to encourage initial hair regrowth.

## Other systemic treatments

Θ There is insufficient evidence to recommend the following systemic interventions to people with AA:

- inosiplex (isoprinosine or inosine pranobex)
- imipramine
- apremilast
- sulfasalazine
- mesalazine
- hydroxychloroquine
- dimethyl fumarate.

## Janus kinase inhibitors

**R39 (↑↑)** Offer a licensed oral Janus kinase inhibitor (if available) to **adults** with **severe** AA.

**R40 (↑↑)** Offer a licensed oral Janus kinase inhibitor (if available) to **young people** with **severe** AA.

**R41 (GPP)** Discuss the recent drug safety update issued by the Medicines and Healthcare products Regulatory Agency (MHRA),<sup>17</sup> the ‘black box’ warning by the Food and Drug Administration (FDA)<sup>18</sup> or the safety recommendation by the European Medicines Agency (EMA)<sup>19</sup> regarding increased risk of venous thromboembolism (VTE), serious cardiovascular events, cancer and death with Janus kinase inhibitors. These drugs should be prescribed with caution in anyone aged >65 years or with risk factors for these conditions.

Θ There is insufficient evidence to recommend topical Janus kinase inhibitors to people with AA.

## Biologics

**R42 (↓↓)** Do not offer efalizumab to people with AA, as the evidence shows that it is ineffective in this population and the risk of adverse events may exceed any potential benefit.

Θ There is insufficient evidence to recommend the following biologic interventions to people with AA:

- ustekinumab
- secukinumab

- abatacept
- intramuscular alefacept
- tumour necrosis factor- $\alpha$  inhibitors
- low-dose anti-interleukin-2
- dupilumab.

## Other topical treatments

**R43 (↑)** Consider topical dithranol (if available) as a treatment option in people with AA, especially in children and young people or those with lack of access to DPCP. Advise patients about the staining properties of dithranol, which can affect scalp hair, fabric and other materials.

**R44 (GPP)** Consider topical prostaglandin analogues (application only on the upper eyelid margin) in **adults** with eyelash alopecia when some hair presence or signs of hair regrowth exists. These agents are probably ineffective at restoring growth where hair has been fully lost. Counsel patients regarding the risk of permanent increased pigmentation of the iris.

Θ There is insufficient evidence to recommend the following topical interventions to people with AA:

- calcineurin inhibitors
- calcipotriol
- ciclosporin
- azelaic acid
- methotrexate 1% gel
- tretinoin
- prostaglandin analogues for scalp alopecia
- dithranol in combination with contact immunotherapy
- dithranol in combination with salicylic acid and coal tar
- mechlorethamine hydrochloride (nitrogen mustard)
- diclofenac sodium
- liquid phenol
- 5-fluorouracil
- sildenafil.

## Minoxidil

**R45 (GPP)** Consider topical or oral minoxidil in people with AA as an adjuvant to other treatment modalities, as it can improve hair density and may reduce the possibility of relapse.

## Psychological

**R46 (↑↑)** Offer\* information on self-help and patient support (e.g. leaflets, books, websites, apps) to people with **mild** psychological distress. General recommendations on treatment and management of low mood are available in NICE guidelines NG222<sup>20</sup> and NG134.<sup>21</sup>

**R47 (↑↑)** Offer\* referral for formal psychological intervention [including individual or group cognitive behavioural therapy (CBT) and specialized forms of CBT that include mindfulness] to people experiencing **moderate-to-severe** psychological distress.

**R48 (↑↑)** Offer\* the use of psychotropic medication (under the supervision of a suitably trained clinician) or/and referral for more intensive forms of psychological therapy or psychiatric intervention, for **more severe** psychological distress.

**R49 (GPP)** When indicated, formally assess for risk of suicide in people with AA. Recommendations on brief assessment of suicide risk are available on the NHS England e-learning platform and NICE guideline NG225.<sup>22</sup>

## Other nonsteroid injectable therapies

Θ There is insufficient evidence to recommend the following injectable interventions to people with AA:

- platelet-rich plasma (PRP)
- microneedling
- carboxytherapy
- cryotherapy
- intralesional pentoxifylline
- intralesional methotrexate
- intralesional vitamin D
- mesenchymal stem cells
- intralesional interferon alfa
- intradermal minoxidil.

## Alternative therapy

Θ There is insufficient evidence to recommend the following alternative interventions to people with AA:

- aromatherapy
- allium/onion ointment
- ginseng
- peony
- glycyrrhizin
- combined complementary therapies (herbal, nettle, dandelion)
- poison primrose (*Primula obconica*)
- herbal sensitizers
- candida antigen
- squill lotion
- hypnosis.

## Future research recommendations

The following list outlines future research recommendations (FRRs).

**FRR1** Randomized controlled trials to evaluate the safety and efficacy of oral Janus kinase inhibitors compared with commonly used interventions in people with AA.

**FRR2** Clinical trials evaluating investigational medicinal products (IMPs) in people with AA should also report on psychological outcomes, using appropriate measurement scales for AA.

**FRR3** Development of an international core outcome set for AA clinical trials to permit data comparison and meta-analyses.

**FRR4** To study the minimal clinically important difference (MCID) for existing disease-specific tools for AA.

**FRR5** Clinical trials to evaluate the effectiveness of psychological interventions and/or therapy in reducing distress associated with AA.

**FRR6** Development of biomarkers and other patient stratification tools to better predict prognosis and inform treatment choices for people with AA.

**FRR7** Identify the most suitable health utility tool for assessment of treatments for managing people with AA.

## 4.0 Algorithm

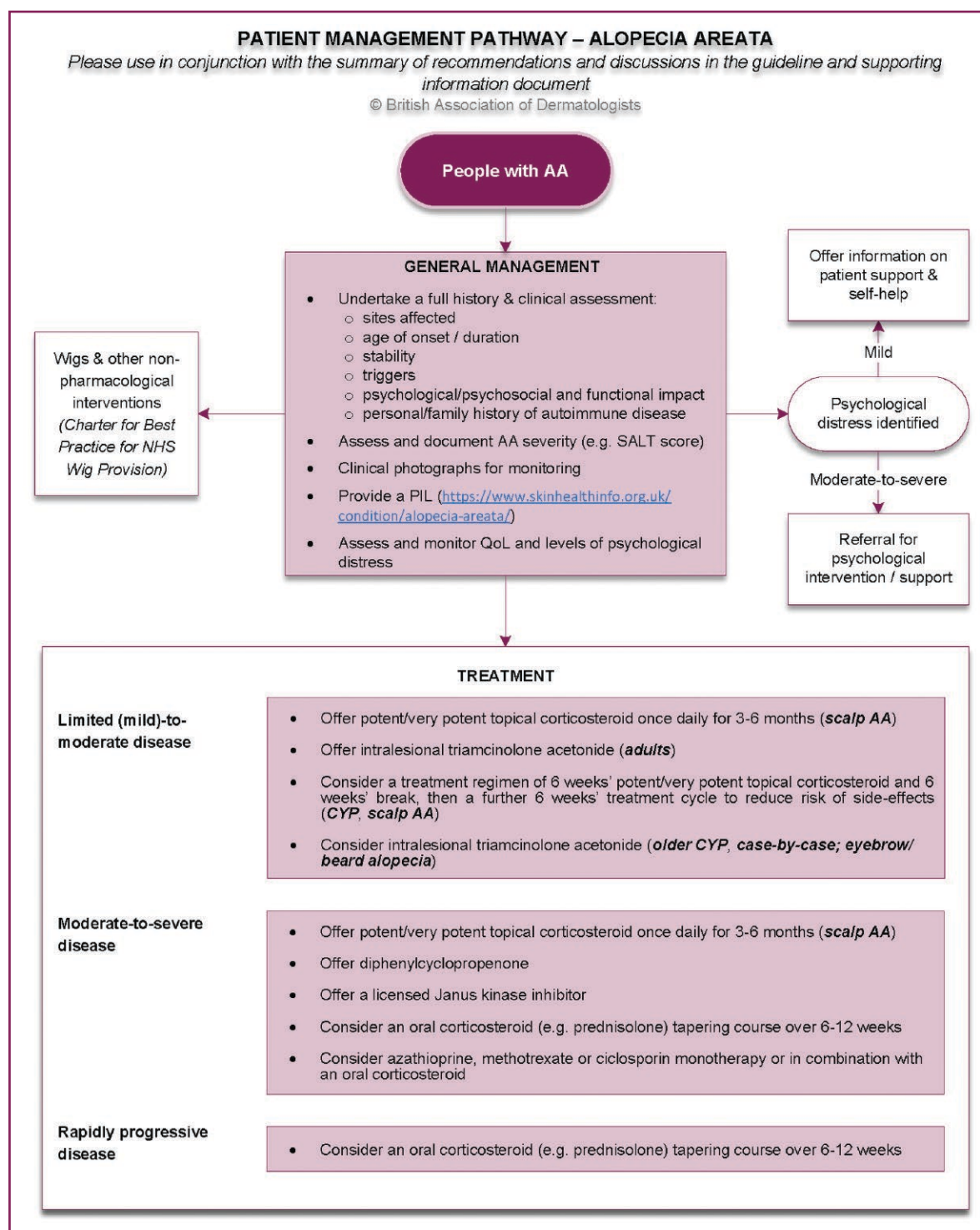
The recommendations, discussions in the LETR (Appendix C) and consensus specialist experience were used to inform the algorithm/pathway of care (Figure 1).

## 5.0 Background

AA is a chronic inflammatory disease that affects the hair follicles and sometimes the nails. It usually presents with patchy scalp hair loss, which can extend to involve the entire scalp, but any hair-bearing skin may be involved, including facial and body hair. Total loss of scalp hair is called alopecia totalis (AT) and complete loss of scalp, facial and body hair is called alopecia universalis (AU). The affected skin may be slightly reddened, but usually appears normal. Short broken hairs (exclamation-mark hairs) are frequently seen around the margins of expanding patches of AA on trichoscopy (dermoscopy). The nails are involved in about 10% of patients referred for specialist advice.<sup>23</sup> A recent UK-based epidemiology study estimated the point prevalence, in 2018, of adults with AA as 0.58% and the peak age of onset as 25–29 years for both male and female patients. Patients who do not describe themselves as having a White ethnic background are more likely to present with AA, specifically those of Asian descent.<sup>24</sup>

### 5.1 Prognosis

The most important prognostic indicators for AA are disease severity and age at initial presentation, with extensive disease and younger age of onset predicting a poorer outcome.<sup>25</sup> These factors are demonstrated in an Italian study of 191 patients with AA seen in clinic between 1983 and 1990 who were contacted by telephone 16–23 years later and self-reported their clinical status.<sup>26</sup> Patients with mild disease (< 20% scalp area affected) at presentation were more likely to report being disease free at follow-up (68% of cases). However, there was a significant tendency for AA to worsen over time, with 19% of those originally seen with mild-to-moderate disease (< 50% scalp area affected) progressing to AT/AU at follow-up, 93% with AU still having extensive disease (AT/AU) at follow-up, and only 3% originally with extensive disease (AT/AU) being disease free at follow-up.<sup>26</sup> Thus, a tendency to progressive disease, and episodes of disease relapse, are common in this condition.<sup>27–29</sup>



**Figure 1** Management pathway for people with alopecia areata (AA). CYP, children and young people; NHS, National Health Service; PIL, patient information leaflet; QoL, quality of life; SALT, Severity of Alopecia Tool.

Hair follicles are preserved in AA, therefore the potential for recovery of hair growth is maintained, although recovery rates may diminish in long-standing disease. Other factors that may affect prognosis include the AA subtype, positive family history and nail disease. The ophiasis subtype (where alopecia affects the hair margins) confers a

poorer prognosis and may be less responsive to treatment; however, the recently described 'acute diffuse and total alopecia' subtype may have a more favourable prognosis.<sup>30</sup> The presence of atopy has also been shown to be associated with treatment resistance in patients with patchy AA.<sup>29</sup>



## 5.2 Aetiology

The exact pathogenesis of AA is unknown. However, AA is considered a chronic T-cell-mediated inflammatory disorder where loss of hair follicle immune privilege, infiltration of proinflammatory cytokine-secreting T cells around the hair follicle bulb, and premature catagen induction are key features in active disease and necessary for hair loss development.<sup>31</sup> Genetic predisposition and (as yet unidentified) environmental factors may also be relevant in disease pathogenesis.<sup>32,33</sup>

### 5.2.1 Genetic factors and autoimmune associations

Genetic predisposition seems to be one of the main determinants for developing AA, with about 20% of people having a family history of the disease.<sup>34</sup> Genome-wide association studies have confirmed the link with major histocompatibility complex (MHC) genes and other genes involved in regulating innate and adaptive immunity, with several of the identified AA susceptibility loci also prevalent in other autoimmune diseases.<sup>33</sup> The human leucocyte antigen (HLA) class II gene products DR4, DR5, DQ3, DQ7 and DPW4 have been strongly associated with AA susceptibility, with HLA-DR on chromosome 6 showing the greatest risk of disease development.<sup>35</sup> CD4<sup>+</sup> and CD8<sup>+</sup> T cells have a key role in AA pathogenesis and have been linked to these HLA class II genes.<sup>35</sup>

There are several other pathways that have been implicated in AA pathogenesis, including genes encoding natural killer cell receptor D (NKG2D) ligands [such as MHC class I polypeptide-related sequence A (MICA) and UL16-binding protein (ULBP)], which act as 'danger signals' in the hair follicle;<sup>36</sup> downstream effectors of the Janus kinase (JAK) pathway;<sup>36</sup> T regulatory cell (Treg) pathways;<sup>35</sup> and melanin-concentrating hormone signalling pathways.<sup>37,38</sup>

### 5.2.2 Hair follicle immune privilege collapse

The lower portion of the normal hair follicle demonstrates immune privilege (a complex array of mechanisms that restrict antigen presentation from these cells),<sup>39</sup> meaning hair follicles are protected from immune surveillance by autoreactive T cells. In AA, CD8<sup>+</sup> T cells and NKG2D<sup>+</sup> cells target anagen hair follicles with disrupted immune privilege.<sup>40</sup> Increased interferon (IFN)- $\gamma$  responses and upregulation of several common  $\gamma$ -chain ( $\gamma$ c) cytokines, including interleukin (IL)-2, IL-7, IL-15 and IL-21, promote recruitment, activation and survival of IFN- $\gamma$ -producing CD8<sup>+</sup> NKG2D<sup>+</sup> T cells. This results in immune privilege collapse,<sup>41</sup> hair follicle dystrophy and premature entry of hairs into catagen phase, leading to the development of hair loss.<sup>31,42</sup>

### 5.2.3 Environmental factors

Emotional stress is an often cited cause of AA based on patient-reported triggers, along with biological changes seen in mouse models and human *ex vivo* hair follicle culture studies.<sup>43–45</sup> Other potential environmental stressors that may be implicated in AA include infections,<sup>46</sup> vaccinations, hormone fluctuations and diet, although their precise roles are uncertain.<sup>32</sup> Several studies have suggested a

correlation between AA severity and vitamin D deficiency; however, the role of vitamin D in AA pathogenesis remains unclear.<sup>47,48</sup> Gut microbiota has been shown to have a key role in influencing various inflammatory and autoimmune diseases,<sup>49</sup> with gut dysbiosis being a potential additional factor in AA.<sup>50</sup>

## 5.3 Comorbidities

### 5.3.1 Atopic and autoimmune associations

AA has been associated with several other autoimmune and atopic disorders. A population-based cohort study of 8051 newly diagnosed patients with AA and 32 204 case-matched controls in England demonstrated that atopic and autoimmune conditions were more prevalent in patients with AA than in controls, showing an increased risk of atopic dermatitis, allergic rhinitis, autoimmune hypothyroidism, systemic lupus erythematosus and vitiligo.<sup>51</sup> Age of AA onset may influence the relative risk of developing these conditions,<sup>52</sup> with atopic dermatitis significantly associated with a younger age of onset.<sup>53</sup>

### 5.3.2 Anxiety and depression

The emotional and functional impacts of AA are well recognized, with increased levels of both coexisting and new-onset anxiety and depression seen in patients with AA compared with controls. Furthermore, having AA is associated with a greater likelihood of being issued time-off-work certificates or being recorded as unemployed.<sup>54</sup> A recent study suggests a bidirectional association between severe depression and AA, indicating that both conditions are independent risk factors for the development of the other.<sup>55</sup> Biologically, systemic inflammation may contribute, with serum IL-22 and IL-17E levels correlating with symptoms of depression.<sup>56</sup> Social discrimination and/or stigmatization are also likely to contribute.<sup>57</sup>

### 5.3.3 Increased cardiovascular risk?

Data from recent publications suggest that AA may be associated with increased cardiovascular and metabolic risk, with stroke and acute cardiac events being seen more frequently, particularly in long-standing cases.<sup>58–60</sup> The potential cause for this is unclear, but chronic inflammation, disease associations, smoking status and the consequence of treatments may play a role. Unfortunately, the published literature shows conflicting results,<sup>61,62</sup> so further work is needed to better understand these potential associations and whether risk reduction strategies are specifically needed in this patient group.

## 6.0 Diagnosis and investigation

The diagnosis of AA is usually based on the clinical presentation and typical examination findings. Trichoscopy can aid diagnosis and management of AA, identifying preserved follicular ostia and regular yellow dots in areas of hair loss and exclamation-mark hairs and black dots typically seen at the hair loss margin when the disease is active. However, the following conditions may cause diagnostic difficulties and should be considered in the differential diagnosis of patchy AA.<sup>63</sup>

1. **Trichotillomania** (hair pulling disorder)  
Trichotillomania is self-inflicted traumatic damage to the hairs as a result of recurrent pulling out of hair. It is characterized by irregular patchy loss with broken hairs of variable length. In contrast to AA, hairs in trichotillomania are firmly attached to the scalp.
2. **Tinea capitis**  
Tinea capitis presents as patchy hair loss, particularly in children, with features of scalp inflammation and surface scale, although these signs may sometimes be subtle.
3. **Early scarring alopecia**  
Trichoscopy is useful in identifying loss of follicular ostia, along with other signs such as perifollicular erythema and perifollicular scale seen in scarring alopecia. A biopsy may be required to exclude this diagnosis.
4. **Temporal triangular alopecia**  
This typically presents in childhood with a static, non-inflammatory triangular or oval patch containing vellus hair located at the frontal hairline; sometimes the condition can be bilateral. In contrast with AA, there are no yellow dots, black dots or exclamation-mark hairs seen in this condition.

Occasionally, AA may present with diffuse hair loss associated with increased hair fall, but without the typical patches. Further investigation may be necessary, and the following differential diagnoses should be considered in this presentation:

1. telogen effluvium
2. anagen effluvium (drug-induced)
3. systemic lupus erythematosus
4. secondary syphilis (usually patchy and 'moth eaten').

For children presenting with complete alopecia within the first year of life, clinicians should also consider congenital conditions associated with total hair loss that may be clinically indistinguishable from AT/AU, particularly 'atrichia with papular lesions' and vitamin D-dependent rickets.<sup>64</sup>

## 6.1 Investigations

Investigations are unnecessary in most cases of AA.<sup>65</sup> If there is diagnostic uncertainty (see Section 6.0) appropriate testing may include fungal cultures, skin biopsy, diagnostic criteria and serology testing for systemic lupus erythematosus, or syphilis screening. Investigations for coexisting autoimmune conditions should be considered on a case-by-case basis depending on the patient history and clinical presentation.

### 6.1.1 Thyroid disease

An association between AA and autoimmune thyroid disease has long been recognized,<sup>66</sup> but opinions are divided on whether routine screening of thyroid function is justified. Two meta-analyses of published data have concluded that the risk of hypo- and hyperthyroidism is significantly increased in AA.<sup>67,68</sup> However, a third did not show an association with diagnosed or serological hypo- or hyperthyroidism, although there was a significant association between AA and the presence of thyroid autoantibodies, which, in

long-term studies, has been associated with the later development of overt disease.<sup>69</sup> The risks of thyroid disease and of serological thyroid abnormalities appear greater in AT and AU.<sup>70,71</sup>

The frequency of thyroid disease is greatest in the older age groups of people with AA, as it is in the population at large, but the risk (vs. that in the age-matched population) is greatest in those aged <20 years.<sup>71</sup> In a study of thyroid function in 298 children with AA the investigators concluded that routine screening in children should be restricted to those with a medical history of Down syndrome, a history of atopy, a family history of thyroid disease or clinical features suggestive of thyroid disease.<sup>72</sup> Whether routine thyroid screening should be performed in adults is debatable, but it may be considered, notably in AT and AU. If performed, tests should include thyroid autoantibodies and thyroid-stimulating hormone and recognize that the increased risk of thyroid disease in AA is lifelong.

### 6.1.2 Iron, vitamin D and other nutritional deficiencies

Deficiencies of nutrients, including iron, zinc and selenium, have been linked with AA. However, these studies are small and show conflicting results. Routine testing for iron status is not supported by evidence. There are no published studies demonstrating a treatment response to iron replacement therapy.<sup>73–76</sup> There have been reports of decreased serum levels of vitamin D<sup>77</sup> and an inverse correlation with the severity of AA,<sup>48</sup> while others have not found an association between dietary, supplemental or total vitamin D intake and incident AA.<sup>78</sup> Ultimately, studies are required to assess the value of vitamin D supplementation in the treatment of AA.

## 6.2 Severity of disease

Most recent clinical trials for AA have used the SALT score (Appendix N) to categorize the levels of scalp hair loss, based on percentage terminal scalp hair loss.<sup>79,80</sup> Severity criteria are presented in the 'Alopecia Areata Investigator Global Assessment'<sup>81</sup> and 'Scalp Hair Assessment PRO' tools,<sup>82</sup> which present severity gradations of scalp alopecia for use in clinical trials. The criteria include grade 0 ('none'; 0% scalp hair loss), grade 1 ['limited' (mild); 1–20% scalp hair loss], grade 2 ('moderate'; 21–49% scalp hair loss), grade 3 ('severe'; 50–94% scalp hair loss) and grade 4 ('very severe'; 95–100% scalp hair loss).

This severity classification can be simplified for clinical practice by combining the top two severity categories into one severity grade ('severe') representing 50–100% scalp hair loss, as used in this living guideline. Further, validated clinician- and patient-reported outcome measures are now available to assess eyebrow, eyelash and nail involvement.<sup>83</sup>

Unfortunately, the extent of scalp hair loss alone does not capture the wider impact of AA on an individual, particularly when psychological distress or functional impact (e.g. loss of eyelashes or nails) is prominent or when other visible body sites are involved. Therefore, a recent expert consensus<sup>5</sup> has advocated adjusting the SALT-based severity rating when other additional factors are present. Thus, limited or moderate AA may have their severity ratings increased by one level if one or more of the following are present:

- 'negative impact on psychological functioning resulting from AA' (Appendix O)
- 'noticeable involvement of eyebrows or eyelashes'
- 'inadequate response after at least 6 months of treatment'
- 'diffuse (multifocal) positive hair pull test consistent with rapidly progressive AA'.

Other factors (e.g. religious significance of hair growth) can also increase the impact of AA in certain situations.<sup>84</sup> This emphasizes that clinical assessment of AA severity must be holistic, addressing individual patient needs, and should be a priority area for future research.

## 7.0 Management

A complete history and careful clinical assessment are required in all people with suspected AA, to confirm the diagnosis and exclude conditions that may mimic this disease (see Section 6.0). As part of the assessment, the functional and psychological impacts of the condition should be explored to determine the priorities for treatment, as these may differ from person to person. A frequent example is how someone prioritizes their desire to regrow their scalp, eyebrow or beard hair over hair regrowth at other body sites, with different treatment approaches often required to achieve this priority for that individual.

Various factors (see Section 6.2), in addition to affected scalp area, can influence disease severity. Discussion of the unpredictable and relapsing nature of AA is important, as that may influence which treatments are chosen. Furthermore, recognize that extensive disease (AT/AU), longer duration of disease and certain presentation (e.g. ophiasis pattern) confer a worse prognosis and reduced likelihood of a successful treatment response.

All people with AA should have a severity assessment (e.g. SALT score) and medical photography<sup>7</sup> at baseline, with these assessments repeated if the clinical situation changes or new therapies are considered. As treatment of AA takes time it is important that the therapeutic trial is of sufficient duration to allow a treatment response, but not so long as to be futile and increase the risk of side-effects.<sup>85</sup> Conventionally, treatments in AA are continued for  $\geq 6$  months, but are stopped if there is an insufficient response.<sup>65,79</sup> Ultimately, the aim of treatment is complete terminal hair regrowth on the scalp and any other body site affected. However, achieving 'cosmetically acceptable' regrowth, where the person with AA has hair growth at body sites important to them or can camouflage the hair loss, is a reasonable and pragmatic alternative goal. As it is recognized that SALT scores do not always correlate with patients' distress, the level of regrowth achieved that is regarded as meaningful will vary between individuals.<sup>86,87</sup>

Following the approval by both NICE and the Scottish Medicines Consortium (SMC), one JAK inhibitor (ritlecitinib) can be prescribed within the NHS for the management of severe AA in adults and adolescents aged  $\geq 12$  years. Although the results of clinical trials have suggested an acceptable drug safety profile, drug safety updates have been issued by the MHRA,<sup>17</sup> a 'black box' warning by the FDA,<sup>18</sup> and a safety recommendation by the EMA<sup>19</sup> regarding increased risk of venous thromboembolism, serious cardiovascular events,

cancer and death with JAK inhibitors. These drugs should be prescribed with caution in anyone aged  $> 65$  years or with risk factors for these conditions. The BAD, in collaboration with the British Hair and Nail Society and Alopecia UK, have jointly issued [supplementary guidance regarding the use of ritlecitinib in AA](#), which includes anticipated response rates and practical guidance for management.<sup>88</sup>

Whether to start, stop or change treatment is ultimately a clinical decision based on several factors and made in discussion with the patient. One area of uncertainty is the transition to and between JAK inhibitors, and their use in combination therapy, due to limited real-world experience of using these agents. Current summary of product characteristics guidance for ritlecitinib advises against combination with other systemic immunosuppressive medicinal products, suggesting that these agents should be used individually and sequentially.<sup>89</sup> Furthermore, as more systemic agents are approved for treating AA, and for those patients with coexisting immune-mediated inflammatory disorders potentially eligible for other licensed agents, consideration should be given to the most appropriate choice of systemic therapy for that individual.

Despite limited evidence, clinicians frequently recommend topical or oral minoxidil and topical prostaglandin analogues to the eyelashes, as adjunctive therapies in AA, based on their known anagen hair-growth-promoting mechanisms of action. They are probably most successful in supporting hair growth once regrowth has started. Reports of improved treatment responses when minoxidil is combined with JAK inhibitors<sup>90</sup> or other systemic agents, and the potential ability of minoxidil to reduce longer-term relapse rates,<sup>91</sup> need confirmation. As some patients starting minoxidil may experience increased hair shedding in the first few weeks of therapy and upon treatment cessation, they should be counselled specifically about this potential side-effect.

Once regrowth has occurred the decision to continue active maintenance therapy, to reduce the risk of relapse, should be considered on a case-by-case basis and reviewed regularly. Tapering the dose may help reduce side-effects and allow longer-term treatment courses, but this approach needs to be balanced against the risk of relapse. Even when a certain treatment has not resulted in complete regrowth, the improvement in hair coverage may allow transition to alternative, safer and more sustainable localized therapies that previously would not have been suitable for more extensive disease. The need for additional psychological support and/or requirements for a wig should be reviewed regularly.

## 7.1 Special populations

### 7.1.1 Conception, pregnancy and breastfeeding

It is important to advise all patients of childbearing potential of the risks and benefits of treatment in the context of pregnancy. This is particularly relevant in AA considering the peak onset and patient demographics in this disease.<sup>24</sup> A clear risk-benefit discussion is required on a case-by-case basis and additional obstetric advice should be sought, if required. Anecdotally, many women with AA describe improvement in their AA during pregnancy, perhaps relating to the physiological immune changes required to carry a baby to term.

Commonly used AA treatments that can possibly be offered during pregnancy and breastfeeding include topical,

intralesional and systemic corticosteroids, topical dithranol and oral ciclosporin. Specific areas to consider are outlined below:

### 1 Systemic corticosteroids

Caution is required due to the potential increased risk of cleft palate/lip (based on animal studies, but not proven in humans) and higher risk of preterm delivery. Maternal blood pressure and glucose levels need to be monitored during treatment.

### 2 Ciclosporin

It is recommended that pregnant women should undergo close monitoring of their blood pressure, renal function and glucose levels.

Treatments to avoid in pregnancy include contact immunotherapy, methotrexate, mycophenolate mofetil, JAK inhibitors and minoxidil. Specifically, there are no data on contact immunotherapy in pregnancy or breastfeeding. Therefore, the recommendation is to avoid pregnancy during and up to 6 months post-treatment. Currently, there are insufficient data on the safety profile of JAK inhibitors in pregnancy, and these agents should also be avoided during breastfeeding. Topical and oral minoxidil should be avoided during pregnancy, based on animal studies raising concerns regarding placental perfusion. Furthermore, there have been case reports of neonatal hypertrichosis following exposure during pregnancy. Minoxidil has been found to be present in breast milk but is not known to be harmful to the fetus (see Appendix C, which also includes advice on paternal exposure).

#### 7.1.2 Paediatric alopecia areata

Children and young people with AA will have varying degrees of hair loss and may be happy and healthy and not wish to seek treatment. The choice to pursue treatment is not always based on the percentage of hair loss, but additive factors, such as noticeability of the alopecia, peer opinion and the wishes of parents or carers, who may have their own specific expectations, also play a role. Therefore, within this complex dynamic, the wishes of the young person must be balanced with those of their family or carers.

The most appropriate treatment will depend on the age and maturity of the person, the emotional and social impact of their hair loss, their ability to tolerate specific therapies (e.g. intralesional injections) and the potential risk of adverse effects with different treatment options. The relapsing and remitting nature of AA should be carefully explained. Early treatment of AA may predict a more favourable outcome,<sup>92</sup> but this must be balanced against medicalization of the childhood years and the potential for developing health anxieties from increased medical intervention and exposure to invasive or painful procedures.

Age-appropriate patient and parent information, including information for schools, can improve the social impact of significant hair loss. The national hair loss charity Alopecia UK provides age-appropriate school and individual resources and can support groups and events for children, as well as provide peer support for individuals and their families. Providing skills and appropriate information to answer peer questions and comments can help and empower the individual to adjust to their change in appearance.

Unfortunately, the evidence base for treatment of AA in the paediatric population is poor, with many treatment

strategies extrapolated from data in the adult population. Therefore, it is vital that future clinical trials, disease registers and other clinical studies should include children and young people, wherever possible, to guide treatment, inform patient stratification and provide an evidence base for clinical management options. Generally, when therapies are chosen to treat AA in young people, the least invasive and safest options are usually chosen first. Topical corticosteroid (any age) and contact immunotherapy ( $\geq 5$  years) are generally well tolerated in this population.

Children and young people may choose to wear a wig to cover their hair loss. Children may find their wigs wear out more quickly depending on activities undertaken. The UK charity The Little Princess Trust (<https://www.littleprincesses.org.uk>) will provide one human hair wig to children and young people with hair loss, aged  $< 24$  years.

## 7.2 Pharmacovigilance

As new, high-cost therapies become available, it is important that we understand the longer-term safety and effectiveness of these treatments specifically in the population with AA. GRASS-UK ([www.bad.org.uk/research-journals/research/grass-uk](http://www.bad.org.uk/research-journals/research/grass-uk)) is a BAD-supported, prospective pharmacovigilance register based at the University of Manchester, and part of an international collaboration (GRASS-International) designed to generate harmonized high-quality, real-world data for existing and emerging AA therapies.<sup>93</sup> All people with moderate-to-severe AA should be encouraged to register for this study, where available.

## 8.0 Recommended audit points

In the last 20 consecutive people with AA, is there clear documentation of:

- 1 Provision of a patient information leaflet on the condition (e.g. <https://www.skinhealthinfo.org.uk/condition/alopecia-areata/>)?
- 2 Objective severity assessment of AA [e.g. SALT or Investigator's Global Assessment (IGA) grading] at first presentation or prior to starting any new therapy?
- 3 Assessment of psychological/psychosocial and functional impact at first presentation?
- 4 Quality-of-life assessment (e.g. DLQI) at first presentation?
- 5 Screening for suicide risk assessment for all people identified as having moderate-to-severe psychological distress at any timepoint?
- 6 Assessment of nail, eyebrow, eyelash or beard involvement at first presentation?
- 7 A potent topical or intralesional corticosteroid offered to treat limited-to-moderate disease?
- 8 Safety advice for patients undergoing contact immunotherapy?
- 9 Medical photography at first presentation?
- 10 Provision of information on wigs, if clinically indicated?
- 11 Assessment of JAK inhibitor risk factors, referenced by the drug safety update issued by the MHRA, FDA or EMA, prior to starting treatment?



The audit recommendation of 20 cases per department is to reduce variation in the results due to a single person and allow benchmarking between different units. However, departments unable to achieve this recommendation may choose to audit all cases seen in the preceding 12 months. See Appendix M in the [Supporting Information](#) for the set of audit standards, data items and data collection methodology.

## 9.0 External review: stakeholder involvement and peer review

The draft manuscript and the Supporting Information document were made available to the BAD membership, the British Hair and Nail Society (BHNS), the Primary Care Dermatological Society (PCDS), the British Dermatological Nursing Group (BDNG) and Alopecia UK. All comments were actively considered by the GDG, and the guideline was updated where appropriate. Following further review, the finalized version was sent for peer review by the Clinical Standards Unit of the BAD, made up of the Therapy & Guidelines subcommittee, prior to submission for publication.

Upon publication in a peer-reviewed journal, the guideline will also be freely available to access on the BAD website.

## 10.0 Limitations of the guideline

This document has been prepared on behalf of the BAD and is based on the best data available at the time of writing. It is recognized that under certain conditions it may be necessary to deviate from the guidelines and that the results of future studies may require some of the recommendations herein to be changed. Failure to adhere to these guidelines should not necessarily be considered negligent, nor should adherence to these recommendations constitute a defence against a claim of negligence. Limiting the review to English-language references was a pragmatic decision, but the authors recognize this may exclude some important information published in other languages.

## 11.0 Plans for guideline revision

The proposed literature surveillance will be scheduled at  $\leq 6$  months, with a view to publish (in the absence of a trigger) appropriate updates 12 months after publication of the previous guideline iteration.

All recommendations will be treated as living. The literature surveillance may lead to amendments in some recommendations and/or the addition of new recommendations, requiring issuance of the next iteration of this living guideline. The next iteration of this living guideline will indicate all changes made to the content, including from a methodological and living guideline maintenance perspective, to enable convenient access to the updated information.

## Acknowledgements

We would like to thank to all those who commented on the draft guideline during the consultation period. We would also like to express our gratitude to Drs David de Berker, Hayley Smith, Zoe Venables and Seau Tak Cheung of the

BAD's National Audit subcommittee for their review of the audit points section of the guideline. M.J.H. is supported by the NIHR Manchester Biomedical Research Centre (NIHR203308).

## Funding sources

Development of this guideline has been funded independently by the BAD. No external factors have detracted from the BAD's organizational and editorial independence. The BAD has a strict adherence to its [Sponsorship Policy and Principles](#).

## Conflicts of interest

The GDG adhered to the BAD's policy for [declaration of interests for guideline authors](#). Further details may be requested by contacting [guidelines@bad.org.uk](mailto:guidelines@bad.org.uk). The following interests were declared over the duration of the guideline development:

**MJH** (1) consultancy regarding UK's treatment landscape for AA, fees from Pfizer and Lilly awarded to the NHS Trust (specific); (2) editorials pertaining to baricitinib phase III studies (specific); (3) contributed to BAD's feedback on baricitinib and ritlecitinib for NICE's appraisal (specific); (4) expert member of NICE baricitinib panel (specific); (5) principal investigator of a clinical trial pertaining to AA funded by Soterios/Manentia (specific); (6) principal investigator/national chief investigator of a trial funded by AbbVie (specific). **LA** (1) speaker fees from Pfizer, L'Oreal and Medthority US (specific); (2) subinvestigator in Pfizer-sponsored research (specific); (3) consultancy for AbbVie (AA related) and L'Oreal (nonspecific). **PF** (1) sponsorship from AbbVie to attend the American Academy of Dermatology Annual Meetings in Washington (2019) and Denver (2020) (nonspecific); (2) member of advisory boards for Eli Lilly and Pfizer (specific); (3) investigator for ritlecitinib (Pfizer) (specific); (4) consultant to Eli Lilly and Pfizer, regarding baricitinib and ritlecitinib, respectively (specific). **GH** (1) chairperson for Celgene regarding apremilast (Otezla) for the management of psoriasis and psoriatic arthritis (nonspecific); (2) sponsorship from Sanofi Genzyme to attend BAD's annual meeting (nonspecific). **SH** (1) manages investments managed by investment trusts (nonspecific); (2) consultancy work for Pfizer UK (specific); (3) principal investigator for a clinical trial (ritlecitinib) funded by Pfizer (specific); (4) providing advice to a drug company on an epidemiological study on AA (specific); (5) NHS Greater Glasgow and Clyde Board has undertaken commercial clinical trials for Pfizer and Manentia and Soterios (specific); (6) coauthor on a poster presenting data from a clinical trial of a treatment for AA, presented at an international academic meeting (specific); (7) submitted evidence to NICE and SMC regarding the management of AA and the role of JAK inhibitors in this condition (specific). **AJ** (1) employee, Alopecia UK (specific). **VMLJ** (1) UK representative for Pantene Hair Research Institute (nonspecific); (2) presentations for Procter and Gamble relating to cosmetic hair products (nonspecific); (3) advisor to Soterios Ltd regarding trial of reformulated dithranol in AA (specific); (4) member of an advisory board for Pfizer regarding AA and patient pathways (specific). **AEM** (1) team funding received from UK Dermatology Clinical Trials Network for research into outcomes for AA (specific); (2) NIHR Eastern Dermatology Specialty Lead UK Dermatology Clinical Trials Network steering group member (specific); (3) coauthor on epidemiological

research for AA with Pfizer (specific); (4) local principal investigator for a future commercial study from NIHR portfolio led by Manentia (specific); (5) local principal investigator on commercial study for topical agent in AA (specific); (6) commercial NIHR Clinical Research Network (specific); (7) NIHR Clinical Research Network Eastern Specialty lead (specific).

**AGM** (1) coauthor of AA guidance for Up-to-Date (specific); (2) chief investigator for a clinical trial of a new topical treatment for AA, funded by Manentia (specific); (3) consultant for Pfizer (specific). **ART** (1) research funding from Alopecia UK (specific); (2) prior member of Alopecia UK research board; (3) consultancy and research work relating to psychosocial aspects of skin disease with pharmaceutical companies including Pfizer, UCB, Sanofi and Incyte (specific and non-specific); (4) trustee for the charity Changing Faces (non-specific); (5) British Psychological Society's representative to the Scar Free Foundation (nonspecific); (6) member of the scientific board for the Vitiligo Society (nonspecific). **AA, AK, AN, AT, MH, LM, MFMM** and **AMC** have no conflicts of interest to declare.

### Data availability

The data are available in the [Supporting Information](#).

### Ethics statement

Not applicable.

### Patient consent

Not applicable.

## Supporting Information

Additional [Supporting Information](#) may be found in the online version of this article at the publisher's website.

**Appendix A** Review protocol.

**Appendix B** Forest plots.

**Appendix C** Linking Evidence To Recommendations (LETR).

- Relative values of different outcomes.
- Balance between desirable and undesirable effects.
- Certainty of evidence.
- Patient values and preferences.
- Cost.
- Other considerations.
- List of recommendations.

**Appendix D** GRADE evidence tables.

**Appendix E** Summary of included comparative studies.

**Appendix F** Summary of included within-patient studies.

**Appendix G** Summary of included noncomparative studies.

**Appendix H** PRISMA diagram – study selection.

**Appendix I** Risk-of-bias analysis.

**Appendix J** Excluded papers.

**Appendix K** Methodology.

**Appendix L** Search strategy.

**Appendix M** Audit standards, data items and data collection methodology.

**Appendix N** Severity of Alopecia Tool score aid.

**Appendix O** Scoring guidance for mental health patient-reported outcome measures.

## References

- 1 Mohd Mustapa MF, Exton LS, Bell HK *et al.* Updated guidance for writing a British Association of Dermatologists clinical guideline: the adoption of the GRADE methodology 2016. *Br J Dermatol* 2017; **176**:44–51.
- 2 Brouwers MC, Kho ME, Browman GP *et al.* AGREE II: advancing guideline development, reporting and evaluation in health care. *CMAJ* 2010; **182**:E839–42.
- 3 The GRADE Working Group. GRADE handbook for grading quality of evidence and strength of recommendations. Available at: <https://gdt.grade.org/app/handbook/handbook.html> (last accessed 21 October 2024).
- 4 Guyatt GH, Oxman AD, Vist GE *et al.* GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ* 2008; **336**:924–6.
- 5 King BA, Mesinkovska NA, Craiglow B *et al.* Development of the alopecia areata scale for clinical use: results of an academic–industry collaborative effort. *J Am Acad Dermatol* 2022; **86**: 359–64.
- 6 Wada-Irimada M, Mizuashi M, Takahashi T *et al.* A retrospective study evaluating the outcomes of high-dose methylprednisolone pulse therapy for 483 patients with moderate-to-severe alopecia areata. *Br J Dermatol* 2021; **185**:1267–9.
- 7 Institute of Medical Illustrators. National standards and guides to best practice. Available at: <https://www.imi.org.uk/resources/professional-resources/national-guidelines> (last accessed 21 October 2024).
- 8 Löwe B, Wahl I, Rose M *et al.* A 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *J Affect Disord* 2010; **122**:86–95.
- 9 Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; **16**:606–13.
- 10 Johnson JG, Harris ES, Spitzer RL *et al.* The patient health questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *J Adolesc Health* 2002; **30**:196–204.
- 11 Spitzer RL, Kroenke K, Williams JB *et al.* A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006; **166**:1092–7.
- 12 Angold A, Costello EJ, Messer SC *et al.* Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *Int J Methods Psychiatr Res* 1995; **5**:237–49.
- 13 Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI) – a simple practical measure for routine clinical use. *Clin Exp Dermatol* 1994; **19**:210–16.
- 14 Mendoza TR, Osei J, Duvic M. The utility and validity of the Alopecia Areata Symptom Impact Scale in measuring disease-related symptoms and their effect on functioning. *J Invest Dermatol Symp Proc* 2018; **19**:S41–6.
- 15 Wyrwich KW, Winnette R, Bender R *et al.* Validation of the Alopecia Areata Patient Priority Outcomes (AAPPO) questionnaire in adults and adolescents with alopecia areata. *Dermatol Ther* 2022; **12**:149–66.
- 16 Alopecia UK. Charter for Best Practice for NHS Wig Provision. Available at: <https://www.alopecia.org.uk/charter-for-best-practice-for-nhs-wig-provision> (last accessed 21 October 2024).
- 17 Medicines and Healthcare products Regulatory Agency. Janus kinase (JAK) inhibitors: new measures to reduce risks of major

- cardiovascular events, malignancy, venous thromboembolism, serious infections and increased mortality. Available at: <https://www.gov.uk/drug-safety-update/janus-kinase-jak-inhibitors-new-measures-to-reduce-risks-of-major-cardiovascular-events-malignancy-venous-thromboembolism-serious-infections-and-increased-mortality> (last accessed 21 October 2024).
- 18 Food and Drug Administration. Janus kinase (JAK) inhibitors: drug safety communication – FDA requires warnings about increased risk of serious heart-related events, cancer, blood clots, and death. Available at: <https://www.fda.gov/safety/medical-product-safety-information/janus-kinase-jak-inhibitors-drug-safety-communication-fda-requires-warnings-about-increased-risk> (last accessed 21 October 2024).
  - 19 European Medicines Agency. Janus kinase inhibitors (JAKi) – referral. Available at: <https://www.ema.europa.eu/en/medicines/human/referrals/janus-kinase-inhibitors-jaki> (last accessed 21 October 2024).
  - 20 National Institute for Health and Care Excellence. Depression in adults: treatment and management [NG222]. Available at: <https://www.nice.org.uk/guidance/ng222> (last accessed 19 May 2024).
  - 21 National Institute for Health and Care Excellence. Depression in children and young people: identification and management. Available at: <https://www.nice.org.uk/guidance/ng134> (last accessed 21 October 2024).
  - 22 National Institute for Health and Care Excellence. Self-harm: assessment, management and preventing recurrence. Available at: <https://www.nice.org.uk/guidance/ng225/chapter/recommendations#principles-for-assessment-and-care-by-health-care-professionals-and-social-care-practitioners> (last accessed 21 October 2024).
  - 23 Messenger AG, McKillop J, Farrant P *et al.* British Association of Dermatologists' guidelines for the management of alopecia areata 2012. *Br J Dermatol* 2012; **166**:916–26.
  - 24 Harries M, Macbeth AE, Holmes S *et al.* The epidemiology of alopecia areata: a population-based cohort study in UK primary care. *Br J Dermatol* 2022; **186**:257–65.
  - 25 Ikeda T. A new classification of alopecia areata. *Dermatologica* 1965; **131**:421–45.
  - 26 Tosti A, Bellavista S, Iorizzo M. Alopecia areata: a long term follow-up study of 191 patients. *J Am Acad Dermatol* 2006; **55**:438–41.
  - 27 Walker SA, Rothman S. A statistical study and consideration of endocrine influences. *J Invest Dermatol* 1950; **14**:403–13.
  - 28 Gip L, Lodin A, Molin L. Alopecia areata. A follow-up investigation of outpatient material. *Acta Derm Venereol* 1969; **49**:180–8.
  - 29 Burroway B, Griggs J, Tosti A. Alopecia totalis and universalis long-term outcomes: a review. *J Eur Acad Dermatol Venereol* 2020; **34**:709–15.
  - 30 Sato-Kawamura M, Aiba S, Tagami H. Acute diffuse and total alopecia of the female scalp. A new subtype of diffuse alopecia areata that has a favorable prognosis. *Dermatology* 2002; **205**:367–73.
  - 31 Paus R. The evolving pathogenesis of alopecia areata: major open questions. *J Invest Dermatol Symp Proc* 2020; **20**:S6–10.
  - 32 Alkhalifah A, Alsantali A, Wang E *et al.* Alopecia areata update: part I. Clinical picture, histopathology, and pathogenesis. *J Am Acad Dermatol* 2010; **62**:177–88.
  - 33 Petukhova L, Duvic M, Hordinsky M *et al.* Genome-wide association study in alopecia areata implicates both innate and adaptive immunity. *Nature* 2010; **466**:113–17.
  - 34 McDonagh AJ, Messenger AG. The pathogenesis of alopecia areata. *Dermatol Clin* 1996; **14**:661–70.
  - 35 Betz RC, Petukhova L, Ripke S *et al.* Genome-wide meta-analysis in alopecia areata resolves HLA associations and reveals two new susceptibility loci. *Nat Commun* 2015; **6**:5966.
  - 36 Petukhova L, Christiano AM. Functional interpretation of genome-wide association study evidence in alopecia areata. *J Invest Dermatol* 2016; **136**:314–17.
  - 37 Fischer J, Degenhardt F, Hofmann A *et al.* Genomewide analysis of copy number variants in alopecia areata in a Central European cohort reveals association with *MCHR2*. *Exp Dermatol* 2017; **26**:536–41.
  - 38 Rajabi F, Drake LA, Senna MM *et al.* Alopecia areata: a review of disease pathogenesis. *Br J Dermatol* 2018; **179**:1033–48.
  - 39 Paus R, Nickoloff BJ, Ito T. A 'hairy' privilege. *Trends Immunol* 2005; **26**:32–40.
  - 40 Paus R, Bertolini M. The role of hair follicle immune privilege collapse in alopecia areata: status and perspectives. *J Invest Dermatol Symp Proc* 2013; **16**:S25–7.
  - 41 Xing L, Dai Z, Jabbari A *et al.* Alopecia areata is driven by cytotoxic T lymphocytes and is reversed by JAK inhibition. *Nat Med* 2014; **20**:1043–9.
  - 42 Ito T, Ito N, Saathoff M *et al.* Interferon-gamma is a potent inducer of catagen-like changes in cultured human anagen hair follicles. *Br J Dermatol* 2005; **152**:623–31.
  - 43 Gulec AT, Tanriverdi N, Duru C *et al.* The role of psychological factors in alopecia areata and the impact of the disease on the quality of life. *Int J Dermatol* 2004; **43**:352–6.
  - 44 Zhang X, Yu M, Yu W *et al.* Development of alopecia areata is associated with higher central and peripheral hypothalamic-pituitary-adrenal tone in the skin graft induced C3H/HeJ mouse model. *J Invest Dermatol* 2009; **129**:1527–38.
  - 45 Peters EM, Liotiri S, Bodó E *et al.* Probing the effects of stress mediators on the human hair follicle: substance P holds central position. *Am J Pathol* 2007; **171**:1872–86.
  - 46 Rodriguez TA, Duvic M. Onset of alopecia areata after Epstein-Barr virus infectious mononucleosis. *J Am Acad Dermatol* 2008; **59**:137–9.
  - 47 McCusker M, Sidbury R. Nutrition and skin: kids are not just little people. *Clin Dermatol* 2016; **34**:698–709.
  - 48 Aksu Cerman A, Sarikaya Solak S, Kivanc Altunay I. Vitamin D deficiency in alopecia areata. *Br J Dermatol* 2014; **170**:1299–304.
  - 49 Honda K, Littman DR. The microbiota in adaptive immune homeostasis and disease. *Nature* 2016; **535**:75–84.
  - 50 Rebello D, Wang E, Yen E *et al.* Hair growth in two alopecia patients after fecal microbiota transplant. *ACG Case Rep J* 2017; **4**:e107.
  - 51 Holmes S, Harries M, Macbeth AE *et al.* Alopecia areata and risk of atopic and autoimmune conditions: population-based cohort study. *Clin Exp Dermatol* 2023; **48**:325–31.
  - 52 Chu S-Y, Chen Y-J, Tseng W-C *et al.* Comorbidity profiles among patients with alopecia areata: the importance of onset age, a nationwide population-based study. *J Am Acad Dermatol* 2011; **65**:949–56.
  - 53 Lee NR, Kim BK, Yoon NY *et al.* Differences in comorbidity profiles between early-onset and late-onset alopecia areata patients: a retrospective study of 871 Korean patients. *Ann Dermatol* 2014; **26**:722–6.
  - 54 Macbeth AE, Holmes S, Harries M *et al.* The associated burden of mental health conditions in alopecia areata: a population-based study in UK primary care. *Br J Dermatol* 2022; **187**:73–81.
  - 55 Vallerand IA, Lewinson RT, Parsons LM *et al.* Assessment of a bidirectional association between major depressive disorder and alopecia areata. *JAMA Dermatol* 2019; **155**:475–9.
  - 56 Bain KA, McDonald E, Moffat F *et al.* Alopecia areata is characterized by dysregulation in systemic type 17 and type 2 cytokines, which may contribute to disease-associated psychological morbidity. *Br J Dermatol* 2020; **182**:130–7.
  - 57 Schielein MC, Tizek L, Ziehfrennd S *et al.* Stigmatization caused by hair loss – a systematic literature review. *J Dtsch Dermatol Ges* 2020; **18**:1357–68.
  - 58 Kang JH, Lin HC, Kao S *et al.* Alopecia areata increases the risk of stroke: a 3-year follow-up study. *Sci Rep* 2015; **5**:11718.
  - 59 Shin JW, Kang T, Lee JS *et al.* Time-dependent risk of acute myocardial infarction in patients with alopecia areata in Korea. *JAMA Dermatol* 2020; **156**:763–71.

- 60 Wang EH, Santos L, Li XY *et al.* Alopecia areata is associated with increased expression of heart disease biomarker cardiac troponin I. *Acta Derm Venereol* 2018; **98**:776–82.
- 61 Huang KP, Joyce CJ, Topaz M *et al.* Cardiovascular risk in patients with alopecia areata (AA): a propensity-matched retrospective analysis. *J Am Acad Dermatol* 2016; **75**:151–4.
- 62 Lee S, Lee YB, Kim BJ *et al.* All-cause and cause-specific mortality risks associated with alopecia areata: a Korean nationwide population-based study. *JAMA Dermatol* 2019; **155**:922–8.
- 63 Harries MJ, Holmes S, McMichael A, Messenger AG. Acquired disorders of hair. In: *Rook's Textbook of Dermatology* (Griffiths CEM Baker J Bleiker TO Hussain W Simpson R, eds), 10 edn. Hoboken, NJ: Wiley-Blackwell, 2024; Chapter 87.
- 64 Yip L, Horev L, Sinclair R *et al.* Atrichia with papular lesions: a report of three novel human hairless gene mutations and a revision of diagnostic criteria. *Acta Derm Venereol* 2008; **88**:346–9.
- 65 Meah N, Wall D, York K *et al.* The Alopecia Areata Consensus of Experts (ACE) study: results of an international expert opinion on treatments for alopecia areata. *J Am Acad Dermatol* 2020; **83**:123–30.
- 66 Muller SA, Winkelmann RK. Alopecia areata. An evaluation of 736 patients. *Arch Dermatol* 1963; **88**:290–7.
- 67 Lee S, Lee YB, Kim BJ *et al.* Screening of thyroid function and autoantibodies in patients with alopecia areata: a systematic review and meta-analysis. *J Am Acad Dermatol* 2019; **80**:1410–13.
- 68 Ly S, Manjaly P, Kamal K *et al.* Comorbid conditions associated with alopecia areata: a systematic review and meta-analysis. *Am J Clin Dermatol* 2023; **24**:875–93.
- 69 Kinoshita-Ise M, Martinez-Cabriales SA, Alhusayen R. Chronological association between alopecia areata and autoimmune thyroid diseases: a systematic review and meta-analysis. *J Dermatol* 2019; **46**:702–9.
- 70 Bin Saif GA. Severe subtype of alopecia areata is highly associated with thyroid autoimmunity. *Saudi Med J* 2016; **37**:656–61.
- 71 Han TY, Lee JH, Noh TK *et al.* Alopecia areata and overt thyroid diseases: a nationwide population-based study. *J Dermatol* 2018; **45**:1411–17.
- 72 Patel D, Li P, Bauer AJ *et al.* Screening guidelines for thyroid function in children with alopecia areata. *JAMA Dermatol* 2017; **153**:1307–10.
- 73 White MI, Currie J, Williams MP. A study of the tissue iron status of patients with alopecia areata. *Br J Dermatol* 1994; **130**:261–3.
- 74 Boffa MJ, Wood P, Griffiths CE. Iron status of patients with alopecia areata. *Br J Dermatol* 1995; **132**:662–4.
- 75 Esfandiarpour I, Farajzadeh S, Abbaszadeh M. Evaluation of serum iron and ferritin levels in alopecia areata. *Dermatol Online J* 2008; **14**:21.
- 76 Jin W, Zheng H, Shan B *et al.* Changes of serum trace elements level in patients with alopecia areata: a meta-analysis. *J Dermatol* 2017; **44**:588–91.
- 77 d'Ovidio R, Vessio M, d'Ovidio FD. Reduced level of 25-hydroxyvitamin D in chronic/relapsing alopecia areata. *Dermatoendocrinol* 2013; **5**:271–3.
- 78 Thompson JM, Li T, Park MK *et al.* Estimated serum vitamin D status, vitamin D intake, and risk of incident alopecia areata among US women. *Arch Dermatol Res* 2016; **308**:671–6.
- 79 Olsen EA, Hordinsky MK, Price VH *et al.* Alopecia areata investigational assessment guidelines – part II. National Alopecia Areata Foundation. *J Am Acad Dermatol* 2004; **51**:440–7.
- 80 King B, Ohshima M, Kwon O *et al.* Two phase 3 trials of baricitinib for alopecia areata. *N Engl J Med* 2022; **386**:1687–99.
- 81 Wyrwich KW, Kitchen H, Knight S *et al.* The Alopecia Areata Investigator Global Assessment scale: a measure for evaluating clinically meaningful success in clinical trials. *Br J Dermatol* 2020; **183**:702–9.
- 82 Wyrwich KW, Kitchen H, Knight S *et al.* Development of the Scalp Hair Assessment PRO™ measure for alopecia areata. *Br J Dermatol* 2020; **183**:1065–72.
- 83 Wyrwich KW, Kitchen H, Knight S *et al.* Development of clinician-reported outcome (ClinRO) and patient-reported outcome (PRO) measures for eyebrow, eyelash and nail assessment in alopecia areata. *Am J Clin Dermatol* 2020; **21**:725–32.
- 84 Moussa A, Bennett M, Wall D *et al.* The Alopecia Areata Severity and Morbidity Index (ASAMI) study: results from a global expert consensus exercise on determinants of alopecia areata severity. *JAMA Dermatol* 2024; **160**:341–50.
- 85 King B, Shapiro J, Ohshima M *et al.* When to expect scalp hair regrowth during treatment of severe alopecia areata with baricitinib: insights from trajectories analyses of patients enrolled in two phase III trials. *Br J Dermatol* 2023; **189**:666–73.
- 86 McSweeney SM, Rayinda T, McGrath JA *et al.* Two phase III trials of baricitinib for alopecia areata: a critically appraised research paper. *Br J Dermatol* 2023; **188**:195–7.
- 87 Renert-Yuval Y, Correa da Rosa J, Garcet S *et al.* Analysis of alopecia areata surveys suggests a threshold for improved patient-reported outcomes. *Br J Dermatol* 2022; **187**:539–47.
- 88 British Association of Dermatologists. Ritlecitinib for alopecia areata. Available at: <https://cdn.bad.org.uk/uploads/2024/07/01005430/Ritlecitinib-for-alopecia-areata-supplementary-guidance-26.06.24.pdf> (last accessed 28 October 2024).
- 89 The electronic medicines compendium (emc). Litfulo 50 mg hard capsules. Available at: <https://www.medicines.org.uk/emc/product/15257> (last accessed 21 October 2024).
- 90 Wambier CG, Craiglow BG, King BA. Combination tofacitinib and oral minoxidil treatment for severe alopecia areata. *J Am Acad Dermatol* 2021; **85**:743–5.
- 91 Olsen EA, Carson SC, Turney EA. Systemic steroids with or without 2% topical minoxidil in the treatment of alopecia areata. *Arch Dermatol* 1992; **128**:1467–73.
- 92 Yang CC, Lee CT, Hsu CK *et al.* Early intervention with high-dose steroid pulse therapy prolongs disease-free interval of severe alopecia areata: a retrospective study. *Ann Dermatol* 2013; **25**:471–4.
- 93 Wall D, Meah N, York K *et al.* A global eDelphi exercise to identify core domains and domain items for the development of a Global Registry of Alopecia Areata Disease Severity and Treatment Safety (GRASS). *JAMA Dermatol* 2021; **157**:1–11.