

HIDRADENITIS SUPPURATIVA

Definition – Hidradenitis suppurativa is a chronic follicular occlusive disease, characterized by recurrent painful, deep-seated nodules and abscesses located primarily in the axillae, groins, perianal, perineal and inframammary regions. The Second International HS Research Symposium (San Francisco March 2009) adopted the following consensus definition. “HS is a chronic, inflammatory, recurrent, debilitating, skin follicular disease that usually presents after puberty with painful deep seated, inflamed lesions in the apocrine gland-bearing areas of the body, most commonly the axilla, inguinal and anogenital region”. HS is frequently misdiagnosed as “boils”. This results in delayed diagnosis, fragmented care, and progression to a chronic, disabling condition that has a profoundly negative impact on quality of life.

The prevalence of hidradenitis suppurativa (HS) is 1 to 4%. Women are more commonly affected than men. Some studies have described a predilection in patients of afro-carib descent, but this has not been confirmed in all. 25% of patients present between the ages of 15 and 20 and 53% are aged 21 to 30. Female to male ratios range from 2:1 to 5:1. Prepubertal cases are rare, but occasional onset in neonates and infants has been described.

HS/AI has been erroneously linked to the apocrine sweat glands. The first pathogenic change is in the follicular portion of the folliculopilosebaceous unit (FPSU).

HS/AI is characterized by recurrent inflamed deep-seated acneform nodules that result in abscesses and chronic draining sinus tract formation leading to scarring, disfigurement and life-altering disability. The lesions classically occur in areas of the skin that host folliculopilosebaceous units.

HS/AI is frequently misdiagnosed as “boils”, resulting in delayed diagnosis, fragmented care, and progression to a chronic, disabling condition.

Diagnosis-Relies on the following diagnostic criteria:

1. Typical lesions: either deep-seated painful nodules (blind boils) in early primary lesions or abscesses, draining sinuses, bridged scars and “tombstone” open comedones in secondary lesions.
2. Typical topography: axillae, groin, genitals, perineal and perianal region, buttocks, infra- and inter-mammary folds.
3. Chronicity and recurrences.

These three criteria must be met to establish the diagnosis.

Multiple skin abscesses occur, with draining subcutaneous sinus tracts. Scarring and deformity are present in many individuals. Although biopsy is not absolutely required for diagnosis of HS, if you send tissue to pathology and tell them that the clinical picture is consistent with HS, they will likely look for the characteristic findings of follicular hyperkeratosis, active folliculitis or abscess, sinus tract formation, fibrosis, granuloma formation, apocrine and eccrine stasis and inflammation, fibrosis, fat necrosis, inflammation of the subcutis.

The basic problem is that people with HS have genetically 'weak pores' that rupture easily. New histologic findings show that the connective tissue wrap around the follicular tube is weak to non-existent at the point where the sebaceous glands attach to the follicle

This defect leads to the following sequence of events:

1. The problem starts with innate and exogenous androgens acting on the follicle duct lining cells so that they build up and occlude the ducts. It is hypothesized that dietary factors that elevate insulin and insulin-like growth factor-1 sensitize the FPSU's androgen receptors, creating the increase in end organ responsiveness that also leads to follicular occlusion.

2. The follicular duct content expands as keratinocytes accumulate and the wall of the follicle eventually ruptures due to the weakness in the follicle support. A number of genetic defects may play a role here.

3. Follicular rupture results in the release of numerous inflammatory stimuli and antigens, including keratin fragments, that trigger even more numerous elements of the innate and adaptive immune systems, leading to the development of an acute inflammatory response in the surrounding tissue. Extensive research has been done on the acute and chronic phase cellular and cytokine reactants in an effort to focus treatment appropriately for more effective therapy.

4. Attempted healing creates chronic inflammation and results in chronic tissue destruction through a foreign body-like reaction and subsequent resolution by scarring.

5. Mechanical factors can be important because any friction or shearing forces, from tight clothing to pinching the area can make it worse. Obesity with resulting sweating, maceration and friction can make things worse. Exogenous androgens such

as progestins and drugs like lithium can also make things worse. Smoking is strongly associated with HS. It promotes follicular plugging in HS as it does in acne. High glycemic load diets, milk and milk products contribute to androgen sensitivity.

6. When the pores rupture, follicular stem cells can be released into the subcutis where they appear to trigger the formation of cysts and sinuses. An invasive proliferative gelatinous mass (IPGM) is produced in most cases, consisting of a gel in which are embedded both inflammatory cells and, it is postulated, the precursors of the epithelialized elements described above.

Continuous growth of these hormonally stimulated remnants beneath the surface perpetuates the communicating sinuses and inflammatory mass and provides increasing volumes of invading material. The inflammation in the dermis and subcutis will not settle until this material is eliminated.

In summary - genetically weak-walled pores, distended under the influence of hormones and subject to friction and pressure, rupture and create painful inflammatory subcutaneous nodules.

Etiologies

The development of HS/AI depends upon a combination of factors.

Genetic factors

A 35-40% positive family history may reflect inadequate family reporting. An autosomal dominant inheritance pattern has been noted, but no specifically genetic defect has been found. Von der Werth suggests that HS/AI is most likely a heterogeneous disease, probably with several genes involved.

Infection

Bacteria have long been considered in the pathogenesis of HS/AI. It is generally agreed that bacteria do not have a major direct role in the etiology of HS/AI but, as secondary invaders, may share in the pathogenesis of the chronic relapsing lesions causing some of the destructive processes that are seen. Septicemia and systemic illness in this disorder are exceptionally rare.

Hormonal factors

A strong relationship exists between sex hormones and HS/AI. The female preponderance suggests a greater sensitivity of females to androgens. There are no elevations in serum androgens in the vast majority of HS/AI patients. End organ

sensitivity is likely responsible. Increased access to the androgen receptor is mediated by insulin and insulin-like growth factor-1 (IGF-1), both chronically raised by dietary factors.

In women, HS/AI onsets around menarche, flares premenstrually and following exposure to androgenic progestins like medroxyprogesterone acetate or levonorgestrel, but improves with pregnancy and fades after menopause.

Anti-androgen therapy helps HS/AI patients of both sexes. Finasteride, a selective inhibitor of the type II isomer of 5 α -reductase, reduces levels of 5 α -DHT. It was used to improve six of seven adults with HS/AI and three children, one with premature adrenarche and one with polycystic ovarian syndrome.

Immune factors

The disease does not usually produce acute systemic inflammatory effects. There is no fever, rare lymphadenopathy, no septicemia, occasional local cellulitis, cultures are usually sterile and, if the offending material beneath the surface is removed, the disease heals without further difficulty and without antibiotics. This is strongly suggestive of inflammation mediated on the local level by the innate immune system. Consider a simple ingrown hair. Flick out the ingrown hair and the inflammation fades.

The immune systems accelerate the disorder. Pathologic examination of excised early lesions demonstrates a wide variety of immune responses involving the innate and acquired (adaptive) immune systems. A vast catalogue of T-lymphocytes and cytokines are assembled. Unfortunately, cooling the inflammation does not cure the disease.

Mechanical Factors

Weakness in the support structure of the follicular portion of the FPSU likely predisposes to follicular rupture caused by local trauma. Patients worsen their lesions by pinching them. Obesity contributes to these increases in pressure and shear forces, but more important is the relationship of obesity to dietary habits that raise plasma glucose and insulin levels. This sensitizes the androgen receptors, increases the plugging of pores, causes insulin resistance and enhances obesity. HS/AI affects thin people but overweight patients have more severe disease.

Smoking

Smoking is strongly associated with HS/AI; smokers are generally more severely affected than non-smokers. Nicotine promotes follicular plugging.

Diet

The androgen receptors that control growth are normally closed to circulating androgens. Elevated insulin (from the combination of high glycemic carbohydrate load and dairy whey) and IGF-1 (induced by casein in milk) open these receptors and expose them to circulating androgens. Androgens from *any* source can then access previously inaccessible androgen receptors. Stimulation of follicular androgen receptors results in ductal keratinocyte overproduction and retention hyperkeratosis. Androgen sources include the adrenals, ovaries and testes, molecular precursors in dairy products, the androgenic progestins in birth control pills, the levonorgestrel-containing IUD, intramuscular medroxyprogesterone acetate (MPA) injections and contraceptive implants.

Drugs

Hidradenitis suppurativa can be triggered or flared by lithium and androgens in BCPs, even IUDs.

Differential diagnosis –Multiple conditions are to be considered in the differential diagnosis of hidradenitis suppurativa.

Infections

Bacterial - Carbuncles, furuncles, abscesses, ischioanal/perirectal abscess, Bartholin's duct abscess

Mycobacteria – TB

STI– granuloma inguinale, lymphogranuloma venereum, syphilis

Deep fungi – blastomyces, nocardia

Tumors Cysts – epidermoid, Bartholin's, pilonidal

Miscellaneous Crohn's, anal or vulvovaginal fistulae

Clinical features – Early/primary lesions are a single, painful, deep-seated nodule 0.5-2cm, round, no “pointing” that may resolve, persist as a “silent” nodule that can recur, or abscess and drain and recur

even if surgically drained. With time these can go on to chronic, recurrent lesions at same site,

coalescing with fibrosis and sinus formation. Lesions persist for months with pain and drainage

with foul odor. These can result in tertiary lesions with hypertrophic fibrous scarring with “bridged scars” forming rope-like bands with active, painful, inflammatory nodules and sinus tracts forming thick plaques over an area. Thick scarred areas can result in decreased mobility and lymphedema.

Lesion course – most form an abscess, rupture and drain purulent material then may resolve and /or recur, form a chronic sinus that can drain with a seropurulent and/or bloody discharge, ulcerate, burrow and rupture into nearby lesions.

Mean age of onset is 22 years old and it lasts on average 19 years but can remit or partially remit with pregnancy and breast feeding. This all can be variable. Each new painful lesion lasts 10-30 days. Flaring with menses is common.

TREATMENT PRINCIPLES

Therapy and prognosis – Planning treatment follows severity grading. The first two stages respond to medical treatment whereas the third stage requires biologics and surgery. All patients will need thorough education and constant reassurance and support.

Treatment

- Define the frequency of the flares and the intensity of the pain when deciding upon treatment.
- A permanent cure is achieved only with wide, thorough, surgical excision
- Combine medical and surgical treatment

Goals of treatment of hidradenitis:

1. To reduce the extent and progression of the disease to bring it to a milder stage
2. To heal existing lesions and prevent new ones from forming
3. To allow regression of scars and sinuses in cases of extensive hidradenitis suppurativa

Hurley's criteria for Hidradenitis Suppurativa Staging

Hurley's criteria for Hidradenitis Suppurativa Staging – used to assess severity

Treatment principles – choose treatment to fit disease severity staging

Stage I: Abscess formation, single or multiple without sinus tracts and cicatrisation/scarring.

Stage II: Recurrent abscesses with sinus tracts and scarring.
Single or multiple widely separated lesions

Stage III: Diffuse or almost diffuse involvement or multiple interconnected tracts and abscess

70% stay in Stage I

28% progress to Stage II

4% progress to Stage III

General Hidradenitis Suppurativa Treatment

There is no single effective treatment or cure for HS/AI. The only permanent cure has been reported with wide surgery for very severe HS/AI (Hurley's III). Patients require metabolic, medical and surgical strategies and lifelong gentle atraumatic care.

Education, diet and support

Improve environment:

- Reduce all trauma, friction in the area, heat, sweating and obesity

 - Loose clothing, boxer-type underwear

 - Tampon use if appropriate / avoid pads

 - Antiseptic washes are optional

 - Consider anti-androgen treatment

 - Stop smoking

Zero dairy diet with low glycemic load diet

At all stages – especially if weight an issue – consider use of metformin to improve sensitivity to insulin in patients on high glycemic load diets. Lowering chronic hyperglycemia reduces insulinemia and so decreases the impact on androgen receptors with a positive outcome.

Treatment - Hurley's Stage I

Abscess formation, single or multiple without sinus tracts and cicatrisation/scarring.

This is the most limited form of disease and it is amenable to medical therapy.

The majority of patients with Stage I have a few flares a year, however they can be well controlled.

Medical Treatment for Stage 1 hidradenitis suppurativa

Topical antibiotics

- Clindamycin 1% lotion bid

Intralesional

Triamcinolone acetonide 10 mg/mL, 0.5 to 1 ml injected with a 30g needle into individual, painful, early papules / small nodules to suppress inflammation. Inject right into the center of the lesion

Systemic Antibiotics (for 7-10 days) - wide choice

Tetracycline 250-500mg po qid or doxycycline 100 mg po bid or clindamycin 300 mg po bid, or amoxicillin/ clavulanic acid 500mg-1gm po q 8h

Caution in patients with diabetes- high dose steroids can interfere with their glucose control.

Adjunct preventive therapy

Zinc gluconate 50 mg with copper 2mg po bid and vitamin C 500 mg tid

Anti-androgens

Yasmin – consider extended regimen (daily x 84 – 126 days)

Yasmin plus spironolactone

Spironolactone 100-200mg/d

Finasteride 5 mg/d (Use of finasteride 5 mg per day in women and young girls as an antiandrogen for both therapy and long-term prevention)

Surgical Treatment – not usually needed for Hurley's Stage I

General Care

Avoid irritants

Loose clothing

Stop smoking

Weight loss

Maintenance

Continue above as needed

Treatment - Hurley's Stage II

Recurrent abscesses with sinus tract formation and scarring, either single or multiple widely separated lesions

The aim is to clear these patients or at least reduce them to stage I disease.

If there are sinus tracts and scarring this will require combined medical and surgical therapy. For those with little scarring and much inflammation use antibiotics such as rifampin and /or clindamycin for 3 months and then decrease to maintenance on tetracyclines and/or high dose zinc and/or dapsone.

General care and intralesional treatment is the same as for stage I. Antibiotics for at least three months are usual, with a decreased dose for maintenance. Systemic antibiotics include tetracycline, as above or, for more extensive disease, clindamycin 300 mg twice a day often combined with rifampin 300 mg twice a day for three months. (See below for prescribing details) Dapsone 100 mg per day can be used. (See below for prescribing details) Long-term maintenance is with a tetracycline etc. (as below) is often recommended. The same adjunctive therapy with diet, no nicotine and zinc gluconate and anti-androgens - see above.

A. Medical Treatment for Stage II

Topical antibiotics

Clindamycin 1% lotion twice a day

Systemic Antibiotics

Amoxicillin and clavulanic acid 3g loading then 1g po q8h for 5-7 days for acute painful lesions or

Clindamycin 300 mg po bid with / without Rifampin 300 mg po bid or Dapsone 50 mg po and then 100 mg po with the appropriate blood work (See below for prescribing details).

Maintenance – Tetracycline 250-500 mg qid, doxycycline or minocycline 100 mg bid

Adjunct preventive therapy

Zinc gluconate 50 mg with copper 2 mg po bid and Vitamin C 500 mg tid

Anti-androgens

Yasmin – consider extended regimen (daily x 84 – 126 days)

Yasmin plus spironolactone

Finasteride 5 mg/d

Intralesional triamcinolone as in Stage I

B. Surgical Treatment –If there are persistent chronic sinus tracts or cysts then obsessive surgical wide unroofing is necessary. Incision and drainage (I and D) should be avoided. Only do this for a tense abscess that is too painful to bear. Acute painful lesions sometimes develop into severely painful abscesses that need to be drained for pain relief only. This is not a curative procedure and needs concurrent antibiotics in full dose. Amoxicillin and clavulanic acid 3g in a single dose, then one gram po tid for 5-7 days is recommended. The lesion must be incised. Packing the wound for a few days may be needed to prevent premature superficial closure while the wound fills in from below

C. and D. General Care and Maintenance- as for Stage I

Treatment - Hurley's Stage III Diffuse or almost diffuse involvement or multiple interconnected tracts and abscess

This stage is a surgical disease and supportive concurrent medical treatment is both prophylactic and essential. This requires a staged medical – surgical team approach

A. Medical Treatment

Pre-Op -These patients will need the anti-inflammatory effects of medical treatment to prepare them for surgical treatment.

Corticosteroids 0.5 – 0.7 mg/kg/d methylprednisolone or prednisone (oral)

Cyclosporine 4 mg/kg/d po

Methotrexate 15 mg oral or subcutaneously weekly

TNF- α inhibitors

Infliximab 5 mg/kg I.V Q6 weeks – use with the help of a knowledgeable health care provider

Adalimumab 40 mg every other week and ustekinumab also have been used

Biologics decrease swelling, inflammation and discharge pre-operatively, simplifying unroofing and excisional surgery, but affect neither the epithelialized sinus tracts nor the invasive proliferative gelatinous mass that is so resistant to therapy. Biologics are not a cure; improvement is rarely permanent.

Clindamycin 300 mg po bid with Rifampin 300 mg po bid

Note – Medical treatment at this stage is only palliative and temporary. **They should avoid nicotine after surgery in order to prevent new lesions and follow the dietary recommendations. Antiandrogens may still be needed.**

B. Surgical Treatment

Wide surgical unroofing and debriding of all cysts and sinuses and fistulous tissue by a knowledgeable surgeon. Healing can be by secondary intent or it may be accelerated with mesh grafting. Primary closure is avoided in active disease. At times skin flaps are required.

Local Unroofing Surgery

Unroofing is simple surgery, an old technique that has been ignored for years. Recently revived, it deserves wide use. It is practical for lesions from the early hot nodules of Stage I to the advancing, branching lesions of Hurley Stage III. Removing early lesions and taking the tops off the deep epithelialized subcutaneous sinus tracts of HS/AI is invaluable. It requires nothing more than sturdy scissors, blades held parallel to the skin surface. Alternatively, laser has been used. It is far more effective than prolonged antibiotics and anti-inflammatory therapy.

Unroofing is not technically difficult, can be performed in the office setting under local anesthesia, and so is easily adapted to the Emergency Room.

This is the technique that we recommend replace “I&D” of fluctuant masses and other manifestations of HS/AI. Every opportunity to perform I&D should be converted into an opportunity to unroof the lesion. It provides superior drainage and pain control, eliminates the risk of inadequate ‘wound toilet’ that leaves behind the invasive proliferative gelatinous mass (IPGM) and fragments of the exploded FPSU. These are the sources of recurrences.

I&D is a temporary 'solution'; unroofing is almost always permanent. It requires very simple post-operative dressings and post-operative pain is remarkably easy to manage.

Lidocaine 1-2% anesthesia with epinephrine is used. Controlled volumes are injected peripherally, avoiding leakage through sinuses. Time for vasoconstriction reduces pain and blood loss.

A single inflamed follicular unit requires only urgent mini-unroofing (not I&D). A biopsy punch of appropriate diameter (5-8mm) is centered over the involved FPSU and a twisting incision removes the central damaged material. This is then debrided with digital pressure, grattage with gauze wrapped around a cotton applicator, then ferric chloride hemostasis is applied with a cotton-tipped applicator.

Fluctuant masses are best initially incised and drained to reduce pressure. The central linear incision is extended to the edge of the loose tissue over the fluctuant area and the incision is extended through 360 degrees at the edge of the 'roof', beveling the edges with scissors. The base of the wound is then scrubbed with coarse gauze. Curettage with a spoon or bone curette may be needed to remove the IPGM. Excision of fat at the base of the wound is unnecessary and counterproductive. All depths and margins are explored digitally, visually, and with scissors tips. Any linear fibrous tissue is suspect as a possible sinus track and is best removed. Communicating sinuses once detected are unroofed. They can be surprisingly extensive and must be totally unroofed. Remove all tissue that is involved with active disease, devitalized or, if left behind, would interfere with healing. The wound base and small bleeders are dried and sealed with ferric chloride solution. Electrodesiccation or electrocautery are rarely needed. Scars are normally soft, contract to a much smaller area than that unroofed, and are quite acceptable to the patients.

Post-operatively, the wound is dressed with a thick coat of simple petrolatum. Running water only, no anti-bacterial soaps and no washcloths are used. Thick layers of petrolatum on cotton or soft gauze are re-applied once or twice daily or as needed. Patients (and wound care staff) must avoid debriding the wound. Healing by secondary intention and epithelialization will proceed only if the fresh epidermis is allowed to cover the wound and is not debrided away.

Unroofing also eliminates the risk and costs of hospital or ambulatory surgical center care, laser, general anesthesia, graft donor sites, dehiscence, infection, the burying of residual inflammatory foci, post-operative antibiotics, time lost from work, and the need for travel to major centers. When performed correctly it stops forever the progression of the lesion treated.

Prognosis – The majority of patients are in stage 1 and can be controlled well. Stage 2 can be more difficult and Stage 3 is very difficult and requires a multi-disciplinary treatment approach. Average duration of disease is 20 years. Squamous cell carcinoma may occur in patients with HS. It tends to be seen in patients who have suffered from HS for ten years or more, will often be advanced in stage at diagnosis.

Specific Drug Information for Medications Used in the Treatment of Hidradenitis Suppurativa

CLINDAMYCIN

In hidradenitis, clindamycin is used as an anti-inflammatory medication.

– helps settle down the redness, swelling, etc.

It is also a very effective medication for bacterial infections

Side effects

Bowel inflammation can occur due to an overgrowth in the bowel of bacteria (*C. difficile*) that release a toxin. This can occur in a few patients. If there is any problem with diarrhea, stop the medication. Other side effects include upset stomach, vomiting, and skin rashes. Clindamycin can be taken with the rifampin or used separately.

Dose – 150 - 300 mg po twice a day - to be taken with food. Use for 3-6 months.

Interactions – can interact with birth control pills

AMOXICILLIN / CLAVULANATE

Used as an anti-inflammatory

Dose – For acute nodules and incised abscessed lesions - amoxicillin and clavulanic acid 3g loading then 1g po q 8h for 5-7 days (taken with food). For indolent nodules, 500 mg po tid for 1-2 weeks.

Side effects – allergy, GI upset, nausea, diarrhea, yeast, rashes

Contraindications – hypersensitivity

Indications – For acute nodular flares.

ZINC GLUCONATE

Zinc gluconate is anti-inflammatory and helps in wound healing.

Dose is 50 mg po bid or 30 mg po tid . This is suppressive rather than curative

Side effects are occasional GI upset with nausea and / or diarrhea.

Zinc in high doses can affect iron in the body with resulting anemia and drop in white count.

Do not increase the dose of zinc.

RIFAMPIN

Rifampin 150 and 300 mg tablets – this is an antibacterial agent that is used for bacterial infections, both common ones and mycobacteria including tuberculosis. This medication is used in hidradenitis suppurativa as an anti-inflammatory and is usually combined with other medications.

Dose - 150 – 300 mg po twice a day. Take on an empty stomach. It is occasionally given as 600 mg in one dose. It can be given with other medication such as clindamycin taken in two doses daily or may be given as a single dose with a large glass of water at 4 AM to prevent any interaction with the other medicines.

Monitoring blood tests for Rifampin - baseline CBC, renal and liver function tests should be taken. Caution should be taken if there is pre-existing liver disease or liver function abnormalities. Repeat blood tests at 2-4 week intervals as needed.

Drug interactions – many may occur

Birth control pills – decreases effect of BCP

Blood thinning drugs – increases INR / clotting time

Heart drugs – digoxin, quinidine

Beta blockers – verapamil

Anti-convulsants –phenobarbital, phenytoin

Anti-fungal drugs – ketoconazole

Bronchodilators – theophylline

Immunosuppressant drugs – cyclosporine

Corticosteroids

Sulfonylurea and other hypoglycemic medications

Miscellaneous – acetaminophen, dapsone.

Enalapril can result in an increase in blood pressure.

Side effects

Urine discoloration – orange red

Permanent staining of soft contact lenses

Allergic reactions

Flu-like syndrome with fever, chills, headache, dizziness & rashes

Skin rashes – itching, hives, pimply reactions, and blisters, rarely erythema multiforme or toxic epidermal necrolysis

Dizziness, headache and fatigue can occur

Rarely anemia and hepatitis

DAPSONE

This is used as an anti-inflammatory. It reduces PMN/WBCs in tissue

Dose – 50 - 100 mg po per day. Start at 50 mg/day for first 2-4 weeks

Caution – the glucose-6 phosphate dehydrogenase should be measured. If this is low there is a higher risk of blood problems such as anemia.

This can be more of a problem for some African Americans and Asians resulting in a more toxic reaction from the dapsone. Dapsone affects red blood cells so that they do not “live as long”. Usually red blood cells last for 120 days but when a patient is on dapsone this can decrease to 80 days causing the hemoglobin, to drop. This can be a problem in patients with heart, liver and kidney disease. A thorough history and physical with attention to the heart, liver and renal function is important.

Patients must be checked to be sure there is no anemia.

Contraindications to the use of dapsone include prior hypersensitivity and agranulocytosis. Patient with severe allergy (hypersensitivity) to sulfonamides may be allergic to dapsone. If a mild allergy to sulfonamides, this is less likely.

Relative contraindication would be significant cardiopulmonary disease, G-6PD deficiency, and severe sulfonamide allergy.

Monitoring blood tests for patients for dapsone

1. G-6PD level must be assessed.
2. CBC with differential, liver function tests, BUN, creatinine and urinalysis.
3. Repeat blood work - CBC with differential, WBC and reticulocyte count every week for 4 weeks and then every 2 weeks for 8 weeks and then about every 3-4 months. Check reticulocyte count to assess response to Dapsone hemolysis.
4. Liver function and renal function tests every 4 months for maintenance.

Drug interactions

1. Dapsone levels are increased with trimethoprim, probenecid
2. Dapsone levels decreased with rifampin
3. Dapsone, if combined with hydroxychloroquine and sulfonamides, yields more red blood cell toxicity

Cross Reactions

Other sulfonamide type drugs - patients with severe allergic reactions to sulfonamide medications may be allergic to Dapsone. This is very rare.

Adverse Effects

1. Hemolytic anemia, methemoglobinemia – symptoms headache, lethargy
2. Hepatotoxicity – mono-like syndrome
3. Peripheral neuropathy
4. Allergy – rashes etc.
5. GI upset

<http://www.hs-foundation.org/>

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