Psoriasis Co-morbidities: Changing Clinical Practice

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Psoriatic Arthritis

- 11-31% of patients with psoriasis have psoriatic arthritis
- Arthritis can occur before, concurrently, or after psoriasis onset
- Substantial impact on quality of life

Figure 2. Symptoms of psoriatic arthritis: (a) pitting and discoloration of the nails, (b) swollen finger joints, (c) and (d) sausage finger and sausage toe (dactylylitis), (e) avulsion heal at the Achilles tendon.
Psoriatic Arthritis

- Assessment of joint disease by dermatologists may facilitate earlier arthritis diagnosis and treatment initiation, which may prevent future disability.

Depression
Depression

- 54% of patients in 2001 NPF survey reported feeling depressed
- 81% embarrassment and shame
- 19% social rejection, such as being asked to leave a place because of their disease
- 5.5% of patients with suicidal ideation, especially younger patients

Successful treatment of psoriasis with PUVA reduced disability and stress related to psoriasis, but did not impact anxiety, depression, and worrying
  - Fortune et al. Br J Derm, 2004

Treatment of psoriasis with etanercept may improve symptoms of depression
  - Tyring et al. Lancet, Jan 2004

Detection of psychological distress in patients with psoriasis is low among dermatologists
  - Richards et al. Br J Derm, 2004
Conclusions

- Depression and anxiety are common in psoriatic patients
- Treatment of psoriasis may or may not improve depression and anxiety
- Screening and referral to mental health professional may be helpful

Smoking
Smoking

- Prospective study
- Studied >78,000 women over 14 years
- Relationship between smoking and incidence of psoriasis
- RR 1.78 current smokers, RR 1.37 past smokers
- Conclusions: Risk of psoriasis increased with duration, intensity, and pack-years of smoking.


Smoking

- Relationship between smoking and severity of psoriasis
- Compared high intensity of smoking (>20 cigs/day) to lower intensity (≤10 cigs/day)
- >2x increased risk of clinically severe psoriasis with high intensity smoking, stronger association with women

IMPROVE study group. Fortes et al, Arch Dermatol. Oct 2005
Smoking and Palmoplantar Pustulosis (PPP)

- PPP: 95% smokers at onset of dz 90% are women
- 15/63 stopped smoking and had significant improvement of pustules over 6 months

Michaelsson et al. JAAD, April 2006.

Why does smoking influence psoriasis?

- Nicotinic cholinergic receptors have been demonstrated on keratinocytes which may control keratinocyte adhesion and upward migration in the epidermis
- Nicotine alters immune responses by directly interacting with T cells and dendritic cells
- Smoking induces an overproduction of IL-1 and increases production of TNF and TGF which has been associated with psoriasis severity

Conclusions

- Higher incidence of psoriasis in smokers
- Strongest association with pustular lesions
- High intensity of smoking may correlate with more severe disease
- Smoking cessation reduces cardiovascular risk and may improve psoriasis
- Intervention may have largest impact on patients overall health

Alcohol
Alcohol

- Large cohort studies showing higher incidence of alcoholism in psoriatics
- 17-30% of moderate to severe psoriasis patients report having problems with alcohol
  - BJD 2008 (158) 138-40
- One study suggested that alcohol is associated with decreased response to treatment in men
  - Gupta et al. JAAD, 1993

Conclusions

- Higher incidence of alcoholism in psoriatics
- Excess alcohol intake limits choice of therapy
- Excess alcohol intake may limit responsiveness to treatment
Obesity

- Case-control study
- Relationship of psoriasis to BMI
- OR 1.6 for overweight
- OR 1.9 for obese
- Conclusions: Prevalence of obesity higher in psoriatics. Obesity may lead to a higher risk of developing psoriasis

Obesity

- Prospective study
- Relative risk of psoriasis increased as BMI increased
- Conclusion: Obesity and weight gain are strong risk factors for psoriasis in women

Nurses’ Health Study II. Arch Derm 2008 (144), 1571-5

How does obesity influence psoriasis?

- Circulatory levels of TNF- are significantly increased in obese subjects as compared with non-obese patients.
- Leptin levels are increased in obesity and in serum and tissue of severe psoriatics.
- Leptin increases T cell proliferation and stimulates TNF- production which may link psoriasis and obesity.

Clin Endocrinol 2001
Arch Derm 2008 (144), 1571-5
BJD 2008 (154), 820-6
**Obesity**

- Losing weight may improve psoriasis:
  - 2 Case Reports of Gastric Bypass Surgery reversing psoriasis
  - 2 patients with severe psoriasis for 15 and 39 years without remission on multiple treatments
  - After surgery and significant weight loss, both patients had complete remission of their psoriasis

- Obesity Surgery, 2006 (16), 94-7
- Obesity Surgery, 2004 (14), 1132-4

**Conclusions**

- Prevalence of obesity is higher in psoriatics
- Obesity may be a risk factor for development of psoriasis
- Losing weight reduces cardiovascular risk and may improve psoriasis
Cardiovascular Disease

Cardiovascular Risk Factors

- Large cross-sectional study evaluating prevalence of cardiovascular risk factors in mild and severe psoriasis vs controls:
  - Diabetes
  - Hypertension
  - Hyperlipidemia
  - Obesity
  - Smoking

Prevalence odds ratios of individual cardiovascular risk factors in patients with mild and severe psoriasis versus controls

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mild psoriasis model (95% CI)*</th>
<th>Severe psoriasis model (95% CI)*</th>
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<tbody>
<tr>
<td>Diabetes</td>
<td>1.13 (1.08-1.18)</td>
<td>1.62 (1.3-2.01)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.03 (1.01-1.06)</td>
<td>1.00 (0.87-1.14) NS</td>
</tr>
<tr>
<td>Lipids</td>
<td>1.16 (1.12-1.21)</td>
<td>1.04 (0.84-1.28) NS</td>
</tr>
<tr>
<td>Smoking</td>
<td>1.31 (1.29-1.34)</td>
<td>1.31 (1.17-1.47)</td>
</tr>
<tr>
<td>BMI (25-30)</td>
<td>1.12 (1.1-1.14)</td>
<td>1.27 (1.14-1.42)</td>
</tr>
<tr>
<td>BMI (&gt;30)</td>
<td>1.27 (1.24-1.31)</td>
<td>1.79 (1.55-2.05)</td>
</tr>
</tbody>
</table>

BMI, Body mass index; CI, confidence interval; NS, not statistically significant.
* Model adjusted for age, sex, person-years, diabetes, hypertension, hyperlipidemia, smoking, and BMI.
† BMI data were available in 61% of patients.

Cardiovascular Risk Factors

- Prospective study
- Diabetes RR 1.63
- Hypertension RR 1.17
- Conclusions:
  - Psoriasis independently associated with increased risk of diabetes and hypertension
    - Nurses’ Health Study II.Arch Derm, April 2009,(145),379-82
Myocardial Infarction

- Pivotal Study
- Prospective cohort study over 5.4 years
- Patients with psoriasis had a higher incidence of MI compared with control patients after controlling for cardiovascular risk factors
- Conclusion: psoriasis is an independent risk factor for myocardial infarction
  

**Figure. Adjusted Relative Risk of Myocardial Infarction in Patients With Psoriasis**

Based on Patient Age Adjusted relative risk is shown on a log scale.

Myocardial Infarction

- Confirmative prospective trials:
  - Increased incidence of MI, peripheral vascular disease, stroke
    - Kaye et al, BJD 2008 (159) 895-902
  - Increased incidence of MI, stroke, TIA in severe psoriasis <60 y.o.
    - Brauchli et al, BJD 2009 (160) 1048-56

Vascular Disease

- VA study
- Increased:
  - Ischemic heart disease (OR 1.78)
  - Cerebrovascular disease (OR 1.7)
  - Peripheral vascular disease (OR 1.98)
  - Mortality (OR 1.86)
    - Arch Derm, June 2009 (145), 700-3
Coronary Artery Calcification Study
Severe psoriasis versus control looking at prevalence of calcification of coronary arteries
58% versus 28% (p<0.002)

Seminars in Thrombosis and Hemostasis, 2009(35), 313-324

From endothelial dysfunction to atherosclerosis
Bottom Line

- Patients with psoriasis should be encouraged to identify and manage their modifiable cardiovascular risk factors
- This may be especially important for younger patients with severe psoriasis

Does Therapy Reduce Risk of Vascular Disease?

- VA study
- Methotrexate reduced incidence of vascular disease in patients with psoriasis or RA
- Add folate and incidence of vascular disease decreases more

JAAD, 2005 (52), 262-7
Treatment Data

- Decreased CRP levels in patients treated with:
  - Cyclosporine
  - Etanercept
  - Narrowband UVB
    - Am J Clin Nutr 2008 (88), 1242-7
    - BJD 2008 (159) 322-30
    - Nutrition 2006 (22) 860-64
Treatment Data

- Decreased incidence of MI in patients with RA in those who responded to TNF_ therapy within 6 months
  - Arthritis and Rheum, Sept 2007 (56), 2905-12
Changing Management

- Flying solo
- Screen
- Educate
- Refer

Screening History

- Smoking
- Alcohol intake
- Depression/anxiety
- Family history cardiovascular disease
Screening Exam

- Weight
- Blood Pressure
  - >140/90
- Joint disease

Screening Labs

- If moderate to severe psoriatic and checking labs for systemic therapy, may also order:
  - Fasting glucose
    - >126 fasting
  - Fasting lipid profile
    - LDL <160 (no or 1 risk factor)
    - LDL <130 (if 2 or more risk factors)
    - LDL <100 (if known vascular disease)
Educate

- People don’t know if you don’t tell them
- Develop a handout that lists psoriasis co-morbidities
- Handout on smoking cessation

Refer

- PCP
- Rheumatologist
- Psychologist/psychiatrist
- Cardiologist
- Nutritionist/Obesity expert