Psoriasis
- “Beyond Skin Deep”

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Consultant Physician & Dermatologist
Outline

- Introduction
- Epidemiology
- Clinical Features
- Associations
- Severity Assessment
- Management
- Registry
History

Hippocrates (460-377BC): “Lopoi” group → Psoriasis, Leprosy

Galen (129-99BC): “Psora” → Desquamative condition

Hebra (1841): Psoriasis as a separate entity
What is Psoriasis?

- Chronic immune-mediated multisystem inflammatory disorder
- Genetic + environmental factors
- Complex immunopathogenesis

Involving:
- Skin: Erythematous scaly plaques
- Nails: Pitting, onycholysis, etc.
- Joints: Inflammatory arthritis, enthesitis
- Other systems: Metabolic syndrome
How common is psoriasis?

- Worldwide prevalence: 1 - 4%
- Prevalence in Malaysia: ?
- No population-based study found
- Published hospital-based studies:
  - 3.8% (Skin Clinic, University Hospital, 3 years, 5373 patients)
  - 2.15% (Derm Clinic, Hosp Seremban, 9 months, 8432 patients)
  - 9.5% (Derm Clinic, Hosp Klang, 3 years, 5607 patients)
<table>
<thead>
<tr>
<th>Institution</th>
<th>No. of new psoriasis cases</th>
<th>% total new cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Kuala Lumpur</td>
<td>458</td>
<td>6.3%</td>
</tr>
<tr>
<td>Hospital Tengku Ampuan Rahimah, Klang</td>
<td>275</td>
<td>9.1%</td>
</tr>
<tr>
<td>Hospital Sultanah Aminah, Johor Bahru</td>
<td>213</td>
<td>5.0%</td>
</tr>
<tr>
<td>Hospital Melaka</td>
<td>143</td>
<td>4.7%</td>
</tr>
<tr>
<td>Hospital Queen Elizabeth, Kota Kinabalu</td>
<td>131</td>
<td>9.7%</td>
</tr>
<tr>
<td>Hospital Tuanku Jaafar, Seremban</td>
<td>75</td>
<td>3.4%</td>
</tr>
<tr>
<td>Hospital Sultanah Bahiyah, Alor Setar</td>
<td>67</td>
<td>4.1%</td>
</tr>
<tr>
<td>Hospital Tengku Ampuan Afzan, Kuantan</td>
<td>63</td>
<td>3.5%</td>
</tr>
<tr>
<td>Hospital Tuanku Fauziah, Kangar</td>
<td>21</td>
<td>2.0%</td>
</tr>
</tbody>
</table>
Epidemiology

- Age of onset: Two peaks reported (Henseler and Christopher, JAAD 1985)
  - a. Type I: Age of onset < 40, positive family history, HLA-associated.
  - b. Type II: Age of onset > 40, no HLA-association.

- Sex: Male = Female

- Family history: 30%
Psoriasis symptoms

N: 17,425 respondents

Kruger G et al. Arch Dermatol 2001

- Scaling: 94%
- Itching: 79%
- Skin Redness: 71%
- Skin tightness: 31%
- Burning sensation: 21%
- Bleeding: 29%
- Fatigue: 19%
- Other: 5%
Etiology

- Unknown

- Genetic Predisposition

- Immune Dysregulation

- Environment Trigger
Accelerated skin desquamation: takes place every 3-5 days.
Common Sites
Pathogenesis

Genetically programmed disease of dys-regulated inflammation

- Triggered by environmental stimuli
- Involving both
  - **Innate immunity** (Dendritic cells, NK-T cells, neutrophils)
  - **Adaptive immunity** (Th17, Th1 cells)
**Trigger/Aggravating Factors**

1. **Trauma**
   - Koebner's phenomenon, sun burn

2. **Infection**
   - Post-streptococcus, HIV

3. **Medications**
   - Topical
   - Systemic: Lithium, B-blocker, anti-malarials, NSAIDS, ACE-inhibitors, alcohol, steroids withdrawal

4. **Endocrine**
   - Hypocalcaemia

5. **Stress**
   - Physical, emotional, smoking
Clinical types

Plaque
80-90%

Inverse

Gutate

Pustular

Erythrodermic
Nail changes

- Pitting
- Onycholysis
- Discoloration
- Subungual hyperkeratosis
- Total nail dystrophy
Classification of Psoriatic Arthritis
(Moll & Wright 1973)

1. Mono or asymmetrical oligoarthritis 70%
2. Distal interphalangeal arthritis 50%
3. Symmetrical polyarthritis (RA-like) 25%
4. Spinal disease (ankylosing spondylitis-like) 5%
5. Arthritis mutilans <1%
Psoriasis is a systemic disease

- Recent studies have described the association of various burdening & life threatening co-morbidities with psoriasis
  - Obesity
  - Diabetes mellitus
  - Hypertension
  - Dyslipidaemia
  - Metabolic syndrome
  - Cardiovascular disease (Kaye et al. 2008)
  - Cancer (lymphoma, NM skin CA, etc)
  - Psychological and social problems
  - Immune mediated inflammatory diseases (Crohn’s disease)
  - Psoriatic arthritis
Why?

Chronic immune disease involving abnormal activation of immune system and consequent overproduction of multiple pro-inflammatory cytokines / mediators → Chronic Systemic Inflammation → “Cytokine milieu”

Inflammatory mediators have pleiotropic effects on diverse processes such as angiogenesis, insulin signaling, adipogenesis, lipid metabolism, immune cell trafficking, etc

Psoriasis is a systemic disease

Di Cesare, A. et al. Journal of Investigative Derm 2005
Davidovici et al. 2010
Comorbidities of Psoriasis

- Metabolic syndrome & its’ risk factors (Obesity, DM, dyslipidemia, HPT)
- Obesity shown to be an independent risk factor for the development of psoriasis & is also associated with more severe psoriasis

2-3 x increase risk of
- Diabetes mellitus
- Hypertension
- Ischemic heart disease
- Abdominal obesity
- Dyslipidemia
Burden of Psoriasis

Physically and mentally disabling

- Increased risk of CVD morbidity & mortality (Myocardial infarct / Stroke)
- Risk of myocardial infarct and associated mortality, highest in young patients with severe psoriasis
- Increased all-cause mortality

Gelfand et al. 2006; Prodanovich et al. 2009; Mehta et al. 2010
# Prevalence of MetS & Risk Factors in M’sia

<table>
<thead>
<tr>
<th></th>
<th>Normal Malaysian Population</th>
<th>Psoriasis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006 NHMS III</td>
<td>2011 NHMS IV</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>≥ 18</td>
<td>≥ 18</td>
</tr>
<tr>
<td>Number of patients</td>
<td>34,539</td>
<td>40,000</td>
</tr>
<tr>
<td>National Prevalence of MetS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>National Prevalence of Dyslipidaemia</td>
<td>20.7%</td>
<td>35.1%</td>
</tr>
<tr>
<td>National Prevalence of HPT</td>
<td>32.2%</td>
<td>32.7%</td>
</tr>
<tr>
<td>National Prevalence of DM</td>
<td>11.6%</td>
<td>15.2%</td>
</tr>
<tr>
<td>National Prevalence of Obesity</td>
<td>14.0%</td>
<td>15.1%</td>
</tr>
</tbody>
</table>

NHMS = National Health and Morbidity Survey; DM = Diabetes Mellitus; HPT = hypertension
MSSM = Metabolic Syndrome Study in Malaysia

Autoimmune Disease & Psoriasis

- Strongest association- Crohn’s disease
  - Common environmental factors
  - Shared pathological mechanism
  - Shared heritable genetic factor- chromosome 6, 16, 3 and 4

- Multiple sclerosis
  - Psoriasis is more common in family members with multiple sclerosis
  - OR of 2.01 to developing psoriasis
Psychiatric Disease & Psoriasis

- Increased prevalence of mood disorders, depression (prevalence up to 24%).

- Suicidal intention.
  - 10% wish to be dead.
  - 7.2% with active suicidal ideation.

- Others: Anxiety, obsessive behaviours, sexual dysfunction.
Emotional Impact of Psoriasis
N: 17 425 respondents

Kruger G et al. Arch dermatol 2001

- Fear disease worsen: 88%
- Feeling of Embarassment: 81%
- Feeling of unattractiveness: 75%
- Depression: 54%
- Contemplation of suicide: 10%
Malignancies & Psoriasis

- Mixed findings, limited by several issues, i.e. sample size, target population, study design, surveillance bias).


- Increased risk of cutaneous squamous cell carcinoma (small reports).

? Association with treatments, i.e. Cyclosporin, MTX, Biologics.
Quality of Life Issues

- Psychosocial impact comparable to COPD, DM, Heart disease, cancer (Rapp, 1999).

- 80% reported having negative impact on their lives, including self-esteem, physical, emotion, social and sexual relationship.
Psoriasis is Life Impacting

Psoriasis causes reduction in physical and mental function, and as it relates to quality of life, it has been compared with cancer, heart disease, diabetes, arthritis, hypertension and depression.


Health-related quality of life survey (USA; n=317) compared with data from the National Survey of Functional Health Status and the Medical Outcomes Study
Challenges

1. Chronic disease - exacerbations & remissions
2. No cure - only control
3. Treatment - prolonged and difficult
4. Psychosocial impact & cost
Management of Psoriasis

- Make an accurate diagnosis
- Assess severity of disease - clinical, QoL
- Identify and avoid aggravating factors
- Educate patient about the disease
- Select appropriate individualized therapy
- Maintain control and reduce impact on QoL
- Minimize adverse effects of treatment
Severity Assessment

Body Surface Area (BSA): 1 Palm size = 1%

Mild
<5%

Moderate
5%-10%

Severe
>10%
Severity Assessment

Impact on patient: Sleep, Daily Activities, Relationship, etc

No effect  Little effect  Significant effect
Severity Assessment

- Extend/severity: Body surface area (BSA), Psoriasis area and severity score (PASI).

- Quality of life:
  - SF-36 Health Survey Form.
  - Dermatology Life Quality Index (DLQI).
  - SKINDEX.
  - Psoriasis QOL 12-item instrument.

“Severe psoriasis”
Rule of ten (BSA > 10%, PASI > 10, DLQI > 10)
## Treatment Modalities

<table>
<thead>
<tr>
<th>Topical Rx</th>
<th>Phototherapy</th>
<th>Systemic Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal Tar</td>
<td>NB-UVB</td>
<td>Methotrexate</td>
</tr>
<tr>
<td>Keratolytics</td>
<td>Oral PUVA</td>
<td>Acitretin (Retinoid)</td>
</tr>
<tr>
<td>Topical steroids*</td>
<td>Bath/soak PUVA</td>
<td>Sulphasalazine</td>
</tr>
<tr>
<td>Vit D₃ analogues</td>
<td>Localised UVB</td>
<td>Cyclosporin</td>
</tr>
<tr>
<td>Dithranol (anthralin)</td>
<td></td>
<td>Hydroxyurea</td>
</tr>
<tr>
<td>Emollients</td>
<td></td>
<td>Biologics</td>
</tr>
<tr>
<td>Topical calcineurin inh.</td>
<td></td>
<td>Systemic steroids*</td>
</tr>
</tbody>
</table>

* used only in “no choice areas”; “no choice situation”

*only used for specific indications*
## Selecting Treatment According to Severity

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Difficult / Recalcitrant</td>
</tr>
<tr>
<td>Topicals</td>
<td>Topicals + Phototherapy</td>
<td>Topicals ± Phototherapy + Systemic Rx</td>
<td>Conventional Rx + Biologics Steroids Others</td>
</tr>
</tbody>
</table>
# Selecting Rx According to Type of Psoriasis

<table>
<thead>
<tr>
<th>Plaque psoriasis</th>
<th>Guttate psoriasis</th>
<th>Pustular psoriasis</th>
<th>Erythrodermic psoriasis</th>
<th>Psoriatic arthropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topicals</td>
<td>Phototherapy</td>
<td>Oral retinoids</td>
<td>Topicals</td>
<td>NSAIDs +</td>
</tr>
<tr>
<td>Phototherapy</td>
<td>Topicals</td>
<td>- acitretin</td>
<td>Retinoids</td>
<td>Sulphasalazine</td>
</tr>
<tr>
<td>Systemic Rx</td>
<td></td>
<td>Methotrexate</td>
<td>Methotrexate</td>
<td>Methotrexate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cyclosporin</td>
<td>Re-PUVA</td>
<td>Leflunomide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biologics</td>
<td>Re-UVB</td>
<td>Biologics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steroids</td>
<td>Cyclosporin</td>
<td>Steroids</td>
</tr>
</tbody>
</table>

**Systemic treatment**

- NSAIDs + Sulphasalazine
- Methotrexate
- Leflunomide
- Biologics
- Steroids
Identify Special Groups

- Pregnant patients
- Reproductive female
- Children
- Elderly
- Patients with other co-morbidities e.g. Fatty liver, viral hepatitis, HIV
CLINICAL PRACTICE GUIDELINES

JUNE 2013

MANAGEMENT OF
PSORIASIS VULGARIS

Ministry of Health Malaysia
Dermatological Society of Malaysia
Academy of Medicine Malaysia
Malaysian Psoriasis Registry (MPR)

- Prospective multicentre systematic collection, analysis and interpretation of data pertaining to psoriasis.

- Initiated by a group of dermatologists following the First Malaysian Psoriasis Symposium in 1998.

Objectives of MPR

General objective:
To obtain more accurate data on various aspects of psoriasis in Malaysia

Specific objectives:
1. To determine the socio-demographic profiles of patients with psoriasis
2. To determine the disease burden attributed to psoriasis
3. To provide information for planning of medical services, facilities, manpower and training related to the management of psoriasis
4. To stimulate and facilitate research on psoriasis and its management
Malaysian Psoriasis Registry

Till 2016, about 16K patients registered
Patients Registered in the Malaysian Psoriasis Registry by Year (2007 to 2016)

16,769 patients were registered in the Malaysian Psoriasis Registry from March 2007 – December 2016.
Patients Registered in the Malaysian Psoriasis Registry by Year (2007 to 2016)
Gender

- Male: 56%
- Female: 44%

$n = 16,769$
Ethnicity

- Malay: 51.6%
- Chinese: 20.5%
- Indian: 17.2%
- Orang Asli: 10.5%
- Others: 0.1%
Family History

- **Percentage Distribution**
  - Yes: 77%
  - No: 23%

- **Relationships**
<table>
<thead>
<tr>
<th>Relationship</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td>821</td>
<td>22.6</td>
</tr>
<tr>
<td>Mother</td>
<td>481</td>
<td>13.2</td>
</tr>
<tr>
<td>Sibling(s)</td>
<td>1139</td>
<td>31.3</td>
</tr>
<tr>
<td>Children</td>
<td>337</td>
<td>9.3</td>
</tr>
<tr>
<td>Other relative</td>
<td>857</td>
<td>23.6</td>
</tr>
</tbody>
</table>
Age of Onset

Mean: 33.35 ± 17.78
### Aggravating Factors

<table>
<thead>
<tr>
<th>Aggravating factors</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>5354</td>
<td>47.9</td>
</tr>
<tr>
<td>Sunlight</td>
<td>2835</td>
<td>25.4</td>
</tr>
<tr>
<td>Infection</td>
<td>1053</td>
<td>9.4</td>
</tr>
<tr>
<td>Smoking</td>
<td>582</td>
<td>5.2</td>
</tr>
<tr>
<td>Trauma</td>
<td>499</td>
<td>4.5</td>
</tr>
<tr>
<td>Drugs</td>
<td>316</td>
<td>2.8</td>
</tr>
<tr>
<td>Alcohol</td>
<td>245</td>
<td>2.2</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>208</td>
<td>1.9</td>
</tr>
<tr>
<td>Topical Rx</td>
<td>73</td>
<td>0.7</td>
</tr>
<tr>
<td>Hypocalcaemia</td>
<td>2</td>
<td>0.0</td>
</tr>
</tbody>
</table>

8,236 (49.1%) patients reported one or more aggravating factors.
Percentage of Co-morbidities

- Others: 10.4%
- Hyperlipidaemia: 17.8%
- Hypertension: 25.4%
- Diabetes mellitus: 17.0%
- Cerebrovascular disease: 1.6%
- Ischaemic heart disease: 5.3%
- Obesity (BMI>=25): 49.0%
Types of Psoriasis

- Plaque psoriasis: 85.0%
- Guttate psoriasis: 1.8%
- Pustular psoriasis: 1.0%
- Erythrodermic psoriasis: 3.7%
- Flexural/Inverse psoriasis: 1.8%
- Palmoplantar non-pustular: 0.5%
Severity

- 52%: 5-10%
- 25%: >10% to <90%
- 21%: 2-5%
- 2%: Erythrodermic (>90%)
Nail Involvement

- Total nail dystrophy: 4.7%
- Subungual hyperkeratosis: 12.3%
- Discoloration: 28.6%
- Onycholysis: 47.1%
- Pitting: 73.2%

55.8% of patients had nail psoriasis
Joint Involvement

- Arthritis mutilans: 2.7%
- Spondylitis/sacroiliitis: 7.3%
- Symmetrical polyarthritis (Rheumatoid like): 30.5%
- Distal hand joint arthropathy: 29.4%
- Oligo/monoarthritis: 37.5%

13.0% of patients had psoriatic arthropathy.
Objectives

1. To describe the extent of which psoriasis affects the quality of life

2. To estimate the cost involved in treating psoriasis in government dermatology centres in Malaysia
QUALITY OF LIFE AND COST OF ILLNESS IN PATIENTS WITH PSORIASIS IN MALAYSIA: A MULTI-CENTER STUDY

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† Department of Dermatology, Penang Hospital, Malaysia
§ Department of Dermatology, Ipoh Hospital, Malaysia

- 250 patients (M:F 135:115, age: 18-83, median 42.5)
- 8 government dermatology centres
- PASI scores: 0.2 - 69.2, median 9.9
- Quality of life assessment:
  - Dermatology Life Quality Index (DLQI)
  - 12-Item Short Form Health Survey (SF12v2)
- Resource utilization data e.g. pharmacotherapy, hospitalization, absence from work, laboratory and radiological investigation, treatment of side effects
46% have very large to extreme large effect
Table 4. Comparison of SF-12v2 between healthy adults and patients with psoriasis and other chronic medical diseases in Ipoh Hospital

<table>
<thead>
<tr>
<th>Type of Chronic Medical diseases</th>
<th>N</th>
<th>Mean age of cohort (years)</th>
<th>SF-12v2</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Physical Score</td>
<td>Mental Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean (SD)</td>
<td>p value compared to Healthy subjects</td>
<td>Mean (SD)</td>
<td>p value compared to Healthy subjects</td>
<td>Mean (SD)</td>
<td>p value compared to Healthy subjects</td>
</tr>
<tr>
<td>Healthy</td>
<td>32</td>
<td>38.7</td>
<td>52.91 (7.02)</td>
<td>-</td>
<td>48.84 (8.41)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psoriasis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>50</td>
<td>43.0</td>
<td>41.67 (8.51)</td>
<td>&lt;0.001</td>
<td>42.25 (10.7)</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without any co-morbidity</td>
<td>27</td>
<td>36.7</td>
<td>39.23 (8.52)</td>
<td>&lt;0.001</td>
<td>41.81 (10.5)</td>
<td>0.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With other co-morbidities</td>
<td>23</td>
<td>51.3</td>
<td>44.52 (7.74)</td>
<td>&lt;0.001</td>
<td>42.78 (11.1)</td>
<td>0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>20</td>
<td>55.6</td>
<td>37.45 (9.71)</td>
<td>&lt;0.001</td>
<td>38.64 (8.07)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>32</td>
<td>58.7</td>
<td>43.96 (8.58)</td>
<td>&lt;0.001</td>
<td>44.81 (9.17)</td>
<td>0.07</td>
<td></td>
<td></td>
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<tr>
<td>Diabetes mellitus</td>
<td>23</td>
<td>55.6</td>
<td>42.08 (10.9)</td>
<td>&lt;0.001</td>
<td>47.12 (8.21)</td>
<td>0.45</td>
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<tr>
<td>Hypertension</td>
<td>35</td>
<td>58.6</td>
<td>41.36 (9.17)</td>
<td>&lt;0.001</td>
<td>46.45 (10.15)</td>
<td>0.30</td>
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<tr>
<td>Component of cost</td>
<td>No of patients</td>
<td>Total Cost (RM)</td>
<td>Average cost per patient per year (RM)</td>
<td></td>
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<tr>
<td>-------------------------------------------------------</td>
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<tr>
<td><strong>Outpatient management</strong></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Topical treatment</td>
<td></td>
<td>110,314.58</td>
<td>506.03</td>
<td></td>
<td></td>
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<tr>
<td>Systemic therapy excluding light therapy</td>
<td>218</td>
<td>84,637.73</td>
<td>388.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other oral medicine related to psoriasis management</td>
<td></td>
<td>4,798.88</td>
<td>22.01</td>
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<td></td>
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<td>Outpatient investigations</td>
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<td>8,893.00</td>
<td>40.79</td>
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<td></td>
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<tr>
<td>Total costs of outpatient management</td>
<td>218</td>
<td>208,644.19</td>
<td>957.08 (a)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Inpatient management</strong></td>
<td></td>
<td></td>
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<tr>
<td>Hospitalization fees</td>
<td></td>
<td>945.00</td>
<td>67.50</td>
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<td>Investigations</td>
<td></td>
<td>1,380.00</td>
<td>98.57</td>
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<td>Inpatient treatment (topical and systemic treatment)</td>
<td>14</td>
<td>2,859.55</td>
<td>204.25</td>
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<tr>
<td>Total costs of inpatient management</td>
<td>14</td>
<td>5,184.55</td>
<td>370.32</td>
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<tr>
<td>Costs borne by patients (for dermatology outpatient consultation fees, phototherapy administration fee)</td>
<td>218</td>
<td>9,286.00</td>
<td>42.59 (b)</td>
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<td>Costs of transportation (for dermatology consultation in dermatology clinics of government hospitals)</td>
<td>218</td>
<td>29,092.00</td>
<td>133.45 (c)</td>
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<tr>
<td>Costs of other medicines and/or supplements that patients bought without doctor’s prescription for treatment of psoriasis</td>
<td>218</td>
<td>38,008.50</td>
<td>174.35 (d)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total costs of illness for psoriasis per person per year excluding hospitalization = (a+b+c+d)</strong></td>
<td></td>
<td><strong>RM1,307.47</strong></td>
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</tbody>
</table>
Conclusion

- Psoriasis is a multisystem disorder
- Profound physical and psychosocial impact
- High direct and indirect cost of illness
- Significant proportion of patients have unsatisfactory outcome despite treatment
- Comorbidities require holistic care
THANK YOU FOR YOUR ATTENTION
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