ORIGINAL ARTICLE

**Herpes zoster (shingles) at a large New Zealand general practice: incidence over 5 years**

J Stewart Reid, Brendon Ah Wong

**Abstract**

**Aim** The objective of this study, in a large group practice in Lower Hutt with a stable population of around 19,000 patients, was to describe the retrospective incidence of shingles over a 5-year period so that it could be compared to international data.

**Method** The practice database was interrogated for patients whose disease code indicated they suffered shingles, herpes zoster, or post herpetic neuralgia between January 1 2009 and December 31 2013. The charts of the identified patients were reviewed to assess whether the diagnosis was confirmed, to ascertain that onset occurred within the specified time period, to describe the site of the rash and the age, sex and ethnicity of the patients. Rates of disease were calculated using a denominator derived from a comparison of patients registered during the 5 years studied.

**Results** The results indicate that incidence of shingles rose with age, females were more frequently affected than males and that the thorax was the commonest site.

**Conclusion** The incidence at this New Zealand medical centre was similar to that reported internationally.

A vaccine against herpes zoster (shingles) has recently become available in New Zealand.1,2 “How likely am I to get shingles?” is an important frequently asked question by potential vaccine recipients. Few data exist concerning the incidence of shingles in New Zealand. In the 2014 New Zealand Immunisation Handbook,3 only hospitalisation data from New Zealand are presented and it is assumed that the incidence of shingles in New Zealand is similar to that reported in other countries. It is widely reported that the incidence of shingles rises with age, from around 1–2/1000 per annum under age 45 to 12–15/1000 per annum over age 80.1,4–7

The lifetime risk of shingles is reported as being 1 in 3 and there is a 50% chance of suffering shingles for those who live to age 85.5 Women are affected more often than men.8

The objective of this study, in a large group practice in Lower Hutt with a stable population of around 19,000 patients, was to describe the retrospective incidence of shingles over a 5-year period so that it could be compared to international data.

**Methods**

The practice is fully computerised using Medtech 32 (version 20.11) software. The database was retrospectively interrogated for those whose disease coding indicated they had suffered shingles, herpes zoster or post herpetic neuralgia between 1 January 2009 and 31 December 2013. In addition those who were prescribed acyclovir 800 mg 5 times daily but who did not have any of the above disease codes were identified.

A chart review of all those identified, by either method, was conducted to establish whether the diagnosis was confirmed. The confirmation of diagnosis following chart review was one of interpretation given that this was a retrospective study and the diagnoses made by up to 15 doctors of varying experience were being reviewed.
A case of shingles was confirmed if its onset was within the specified time period and either:

- A swab from the rash was PCR positive for varicella zoster virus
- The rash was described as “classical shingles” or similar description
- The rash was described as unilateral, dermatomal and vesicular
- A subsequent consultation suggested that the diagnosis was confirmed – further description of rash, ongoing allodynia or pain

A case was excluded if:

- A swab from the rash was PCR positive for herpes simplex virus (HSV)
- The diagnosis was “recurrent shingles”, which was assumed to be HSV
- Diagnostic uncertainty was expressed and not clarified by further consultations.

For each confirmed case, age, sex, ethnicity, site of rash, referral and antiviral prescription were recorded. It was initially thought that it would be possible to ascertain the duration of symptoms but the data recorded were too variable to make any assessment of this feasible.

The denominator was chosen following comparison of the number of patients registered each year from 2009 until 2013 and the age breakdown of registered patients for the years for which such data were available.

Rates of disease per thousand patients per annum were calculated by multiplying the number of confirmed cases in each population by 1000 and dividing that figure by 5 times the denominator population.

**Results**

A total of 339 cases had a diagnosis of shingles, herpes zoster or post-herpetic neuralgia (diagnosis group) recorded from 1 January 2009 until 31 December 2013. An additional 44 cases were prescribed acyclovir 800mg five times daily and did not have a diagnosis recorded (prescription group). Following the chart review 287 cases confirmed cases remained of which 273 were from the diagnosis group and 14 were from the prescription group.

203 cases (70.7%) occurred in those aged 51 and older. 149 cases (51.9%) were thoracic, 44 lumbar (15.3%), 76 cervical (26.5%) and 18 ophthalmic (6.3%). Only ophthalmic cases were the subject of referral and, with one exception, an individual leaving for overseas the following day, all were referred.

Almost all of the 70.7% of cases in those aged 51 and older were of New Zealand European or other European ethnicity. Six cases occurred in those of Maori, two of Pacific Island and seven of Asian ethnicity.

Thus 92.6% of cases in those aged 51 and greater were of European ethnicity. The ethnic distribution of the practice differs from New Zealand as a whole and is 6% Maori, 3% Pacific, 10% Asian and 81% European. The 2013 New Zealand Census indicated that 14.9% of the population were Maori, 7.4% Pacific and 11.8% Asian.

Acyclovir 800mg five times daily, usually for seven days (range five to ten), was the only antiviral prescribed. 169 (83%) of those aged greater than 50 years were prescribed acyclovir. Forty-nine (58%) of those aged 50 years or less were prescribed acyclovir. For both age groups the usual reason for not prescribing was late presentation though, in the younger age group, less severe disease with minimal pain was also a reason for not prescribing.

The denominator was taken as the March 2014 registered population; see table 1. Data were available on the total number of patients registered for each year from 2009 until 2013, but the age breakdown of patients registered was only available from 2011. The highest number of registered patients occurred in 2011 but the excess over March 2014 was because of a much larger number of patients.
aged 50 years and under. Therefore we considered that the denominator chosen was conservative and would not inflate the rate of shingles in the older age groups.

**Table 1: Registered population 2009–2014**

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>March 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered patients</td>
<td>19,386</td>
<td>19,371</td>
<td>19,413</td>
<td>18,722</td>
<td>18,893</td>
<td>19,328</td>
</tr>
</tbody>
</table>

Rates of disease are described in Table 2. The overall rate of disease was 2.97 per thousand patients per annum. The rate of disease rises with age and for those age greater than 80 years is 13.91/1000/annum. For those aged greater than 50, the rate of disease in females was 6.38/1000/annum compared to the rate in males which was 5.75/1000/annum. Thus women over 50 years had an approximately 10% higher rate than men of the same age.

According to these data during the ten year period from age 51 to 60 years approximately 3.5% of individuals will suffer shingles: from age 61-70 years 6.3% will suffer shingles and from 71 to 80 years 8.3% will be affected. The cumulative risk of suffering shingles for the 30 years period from age 51 to 80 is therefore approximately 18%.

**Table 2: Rates of disease by age group**

<table>
<thead>
<tr>
<th>Group (gender &amp; years of age)</th>
<th>Number identified</th>
<th>Number confirmed</th>
<th>Denominator</th>
<th>Rate (1000/annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ≤ 50</td>
<td>103</td>
<td>84</td>
<td>12,647</td>
<td>1.33</td>
</tr>
<tr>
<td>All ≥ 51</td>
<td>245</td>
<td>203</td>
<td>6,681</td>
<td>6.1</td>
</tr>
<tr>
<td>All &gt; 60</td>
<td>187</td>
<td>154</td>
<td>3,826</td>
<td>8.1</td>
</tr>
<tr>
<td>F 51–60</td>
<td>33</td>
<td>26</td>
<td>1,534</td>
<td>3.39</td>
</tr>
<tr>
<td>F 61–70</td>
<td>49</td>
<td>39</td>
<td>1,079</td>
<td>7.23</td>
</tr>
<tr>
<td>F 71–80</td>
<td>32</td>
<td>27</td>
<td>649</td>
<td>8.32</td>
</tr>
<tr>
<td>F &gt; 80</td>
<td>27</td>
<td>23</td>
<td>345</td>
<td>12.96</td>
</tr>
<tr>
<td>M 51–60</td>
<td>25</td>
<td>23</td>
<td>1,310</td>
<td>3.51</td>
</tr>
<tr>
<td>M 61–70</td>
<td>34</td>
<td>26</td>
<td>990</td>
<td>5.25</td>
</tr>
<tr>
<td>M 71–80</td>
<td>25</td>
<td>22</td>
<td>533</td>
<td>8.25</td>
</tr>
<tr>
<td>M &gt; 80</td>
<td>20</td>
<td>17</td>
<td>230</td>
<td>14.78</td>
</tr>
</tbody>
</table>

**Discussion**

Hope-Simpson\textsuperscript{10} in his classic epidemiology study over 25 years in his practice of approximately 3800 patients found that the incidence rises with age and is around 11/1000 per annum by age 80, similar to the rate seen in this paper. These data are replicated in other studies with, in general, an incidence of around 12–15/1000/annum for those aged 80 years and older.

In Australia, for those aged >60 years, the rate of shingles is now 15/1000 per annum.\textsuperscript{7} Yawn et al\textsuperscript{11} indicated that the population rate in the US is 3.6/1000 person years and in our study the rate was comparable at 2.97/1000/annum. Our data indicate that the incidence rose with age, was higher in females than males and our rates corresponded to those reported in the international literature.

Dworkin\textsuperscript{12} reported that the site of disease was 50–70% on the trunk, 10 - 20% cervical and 10 - 20% ophthalmic. Our data, though similar at least for the trunk, had a rather higher rate for cervical disease and a lower rate for ophthalmic. We have no explanation for this variation other than the relatively small numerator in our study.
There are limitations to these data. Retrospective case reviews have inherent inaccuracy in that data are not recorded systematically. The quality of note taking varied and the clinical experience of the doctors in the practice ranged from 30 plus years of general practice to general practice registrars in their first year of practice.

In the course of the chart review we attempted to be quite strict about which cases were confirmed and we have confidence that those counted are highly likely to be cases of shingles. It is possible, however, that we have excluded too many cases given the strict approach we took, and there may have been some cases not disease coded who were not prescribed acyclovir 800 mg five times daily.

The population denominator is also subject to some imprecision but we consider that the denominator chosen did not result in any inflation in the observed rates.

This is the first report of shingles incidence in New Zealand. Given the predominately European ethnicity of our practice we consider that these data are likely to reflect the incidence of shingles in the European New Zealand population as a whole. The data are too few to make any comment about other ethnic groups.

Competing interests: No support was provided to the authors for the conduct of this study. Dr Reid has received support from MSD, honoraria, travel and accommodation, to give talks on herpes zoster and Zostavax.

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Acknowledgements: We acknowledge the staff at Ropata Medical Centre and Karo Data Management who conducted the database searches as well as our general practitioner colleagues whose clinical records we reviewed.

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References
