Agricultural work is dangerous with a high risk of fatalities and permanent disability (Brison and Picket, 1991; Brown et al, 1997; Cogbill and Busch, 1985; Cogbill et al, 1991; Demers and Rosenstock, 1991; Fuortes et al, 1990). Accidents with machinery are common (Boyle et al, 1997; Nordstrom et al, 1995; Young, 1995). Cornpickers and roller belts are examples of machinery that may cause severe injuries to the hand leading to permanent disability (Ada et al, 1994; Campbell et al, 1979). Contact with animals can also lead to upper extremity injuries especially during milking, feeding, trimming and treating hooves, and Hansen (1986) found the upper extremity to be the most common site of injury in agricultural injuries treated in hospital. As Campbell et al (1979) found an incidence of 89% permanent disability following hand injuries with cornpickers, we wanted to investigate the incidence of hand injuries in farming accidents in a defined population with a representative mixture of agricultural activities including animal farms, corn and potato harvesting.

MATERIAL AND METHODS

The County of Ringkøbing, Denmark, had 270,000 inhabitants in the study period, 13,835 of whom were engaged in full-time farming on 7922 farms.

The County has five hospitals (two major hospitals and three smaller hospitals), which all provide 24-hour trauma treatment.

During the year 1992 all agricultural accidents treated at all five hospitals in the County of Ringkøbing were prospectively registered and age, sex, injury mechanism, diagnosis and treatment were noted. Follow-up was done by telephone interview 4 months after the accident, with special reference to sick leave and any working disability.

For statistical comparison Student’s t-test was used.

RESULTS

In the 12-month registration period 260 persons were registered as having sustained injuries that could be directly related to agricultural work (19 per 1000 agricultural workers). There were four fatal accidents.

Of the 260 persons, 117 (45%) had lesions of the upper extremity (9 per 1000 agricultural workers) and 73 persons (28%) had hand injuries (5 per 1000 agricultural workers). The mean age patients with hand injuries was 39.4 years (range, 3–68) compared with 40.8 years (range, 2–81) in patients with other injuries. This difference was not significant. The age distribution for persons with hand injuries and other injuries is seen in Figure 1. The most common injuries were lacerations and amputations (45%) followed by fractures (36%). The diagnoses and accident types are shown in Table 1.

Mean sick leave was 25 days (range, 0–150) for patients with hand injuries and 25 days (range, 0–180) in patients with other injuries. Again this difference was not significant. The mean period of work impairment was 31 days (range, 0–300) in patients with hand injuries and 32 days (range, 0–180) in patients with other injuries, which was not significantly different.
DISCUSSION

The incidence of injuries in our study was much lower than the incidence reported by Brison and Pickett (1991) and Pickett et al (1995), but we think that this was because the trauma treatment service is different in our area. In the two studies quoted most injuries were treated at hospital. In our County most patients with minor injuries are treated by general practitioners (approximately 75% of all trauma cases) and only the more severe cases are treated in hospital. This is reflected by the large percentage of fractures in our study compared with other studies (Brison and Pickett, 1991; Demers and Rosenstock, 1991; Nordstrom et al, 1995; Zhou and Roseman, 1994). Apart from this difference the anatomical localization of the injuries and the age distribution of the patients were similar to these other studies.

As in other studies we observed many different types of accidents. Amputations and lacerations of the hand and fingers were more common in accidents with machinery, including severe lacerations in corn and potato pickers, and fractures were more common in injuries from animals.

To our surprise the hand injuries did not result in longer sick leave and working impairment than other injuries. We think that this is due to the type of injuries, which were mainly traumatic amputations, and also because farming does not require delicate hand function. In this study, which used an interview by telephone as a follow-up, we were not able to determine how many patients had permanent disability after the hand injuries. However, more than half of the patients had working impairment for more than 3 weeks and most of the patients with traumatic amputations and lacerations (one-third of the hand injuries) would have some permanent disability.

Table 1—Types of accident and injury in 73 persons with hand injuries sustained during agricultural activities

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Animal accident</th>
<th>Machine accident</th>
<th>Other accidents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture</td>
<td>16</td>
<td>7</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>Dislocation</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Laceration/amputation</td>
<td>6</td>
<td>24</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Tendon lesion</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Superficial lesion</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Contusion</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>38</td>
<td>6</td>
<td>73</td>
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References


