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ABSTRACT

INTRODUCTION: There is an increasing emphasis on doctors to treat patients in the outpatient setting. With the continuing reduction in budgets, coupled with the high cost of providing an acute hospital bed, research and development of hospital admission avoidance schemes should be a priority.

AIM: To show that intravenous antibiotic therapy can be provided in a safe and cost-effective manner in the community to patients who would otherwise receive acute hospital admission for the same therapy.

METHODS: We conducted a retrospective study to analyze the number of patients that were treated with intravenous antibiotics in the community by our hospital admission avoidance scheme over the period of one year. The mean daily cost of providing this treatment in the home was calculated and compared to the mean daily cost of a hospital bed.

RESULTS: A total number of 28 patients were treated over a period of one year for a variety of conditions. A total number of 28 patients were treated with intravenous antibiotics in the community referred from Our Lady of Lourdes Hospital to the hospital admission avoidance scheme operating in the North East over a period of one year.

This was performed by chart review in combination with the data provided from the patient information databases used by the community based treatment providers.

Patient demographics and conditions treated were recorded as well as number of intravenous antibiotic doses provided, and number of treatment days.

The mean daily cost of this service was calculated and compared to the mean daily cost of a hospital bed.

CONCLUSIONS: This scheme allowed the treatment of patients in a safe and effective manner in the community. A significant saving was also achieved by treating patients by this method, making this a cost effective and safe programme which should be exploited to its maximum potential.

INTRODUCTION

Recently, there has been significant emphasis on a transition in the healthcare service from providing services in the acute hospital setting to the formation of primary care teams with both medical and allied health professional members. There has been a push to treat patients in the outpatient setting that takes the pressure of the acute hospitals which are plagued by an endless demand for beds. With the continuing reduction in budgets and pressure to decrease costs, coupled with the high cost of providing an acute hospital bed, research and development of hospital admission avoidance schemes should be a priority.

Soft tissue infections such as cellulitis are a common referral to our general surgical team. Figures for the incidence of cellulitis in the United States, overall rates of visits for skin and soft tissue infections increased from 32.1 to 49.1 visits per 1000 population, and reached 14.2 million in 2005. Visits for abscesses and cellulitis increased from 17.3 to 32.5 visits per 1000 population and accounted for more than 90% of this increase. A study in the United Kingdom, utilizing the Hospital Episode Statistics database, identified a 3-fold increase in hospital admissions for treatment of cellulitis and abscess for the period 1996-2005. Many of these patients require treatment with intravenous antibiotics and are admitted into an acute hospital bed. A significant number of these patients are fit, healthy and asymptomatic and require no other treatment. This group of patients could benefit from provision of these treatments in their home, thus improving quality of life and decreasing costs.

AIM

The aim of this study is to prove that intravenous antibiotic therapy can be provided in a safe and effective manner in the community to patients who would otherwise receive acute hospital admission for the same therapy. We also aim to show that this is an extremely cost effective method of supplying these therapies and in using this scheme the number of hospital admissions can be reduced.

METHODS

We conducted a retrospective study to analyse the number of patients that were treated with intravenous antibiotics in the community referred from Our Lady of Lourdes Hospital to the hospital admission avoidance scheme operating in the North East over a period of one year.

This was performed by chart review in combination with the data provided from the patient information databases used by the community based treatment providers.

Patient demographics and conditions treated were recorded as well as number of intravenous antibiotic doses provided, and number of treatment days.

The mean daily cost of this service was calculated and compared to the mean daily cost of a hospital bed.

RESULTS

A total number of 28 patients were treated over a period of one year for a variety of conditions:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellulitis</td>
<td>7</td>
</tr>
<tr>
<td>Bursitis (Knee)</td>
<td>5</td>
</tr>
<tr>
<td>Osteomyelitis (Jaw)</td>
<td>5</td>
</tr>
<tr>
<td>Viral Meningitis</td>
<td>3</td>
</tr>
<tr>
<td>Bacterial Meningitis</td>
<td>3</td>
</tr>
<tr>
<td>Chest Infection (Cystic Fibrosis)</td>
<td>2</td>
</tr>
<tr>
<td>Bacterial Cholangitis</td>
<td>2</td>
</tr>
<tr>
<td>Bacterial Peritonitis</td>
<td>2</td>
</tr>
<tr>
<td>Bacterial Pericarditis</td>
<td>2</td>
</tr>
<tr>
<td>Pneumonia (Community)</td>
<td>2</td>
</tr>
<tr>
<td>Pneumonia (Hospital)</td>
<td>2</td>
</tr>
<tr>
<td>Infective Endocarditis</td>
<td>1</td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td>1</td>
</tr>
<tr>
<td>Tuberculosis (HIV positive)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

NB: One patient required a prolonged course of antibiotics for chronic osteomyelitis and was treated in the community for 385 days in total. This had an impact on our results and increased the number of bed days significantly. It also had an impact on the mean cost of providing antibiotics in the community as the patient received antibiotics on average twice a day.

CONCLUSIONS

Hospital Avoidance schemes have been in place internationally and their role is to provide a treatment to a patient in their home for a condition that would otherwise require admission to an acute hospital bed. In doing this, costs may be reduced by an acute bed, which carries a high cost, does not have to be provided. In recent years, there has been an increase in the amount of research into this area, with an emphasis on safety, efficacy and cost effectiveness. Sheppard et al performed an extensive meta-analysis assessing the effectiveness of hospital avoidance schemes and showed that there is no evidence from the analysis to suggest that admission avoidance hospital at home leads to outcomes that differ from inpatient hospital care. Treatment of cellulitis by intravenous antibiotic delivery in the home was specifically assessed in a prospective randomized controlled trial by a group of primary care physicians in New Zealand and this confirmed that treatment of cellulitis requiring intravenous antibiotics can be safely delivered at home. Only eleven patients (12%) randomized to home treatment in this trial, required transfer to hospital confirming that this is a safe treatment strategy.

In Our Lady of Lourdes Hospital, Drogheda, we have the option of referring patients suitable for this type of treatment in the home, to a nurse led scheme operating in the north east. Patients are visited in their homes and are assessed daily and their intravenous antibiotics are administered according to the referring consultant who receives daily or weekly reports, depending on their preference, and are reviewed regularly in the outpatient clinic. Communication channels are kept open throughout the course of the treatment and the team/consultant are contacted immediately if any problem occurs.

Our experience has been an excellent one. This scheme has made it possible for us to treat patients in a safe and effective manner in the community due to the continuous communication with the treatment provider and regular follow up in the outpatient department. This is combined with a report of 100% patient satisfaction. A significant saving has also been achieved by treating patients by this method, making this a cost effective programme which should be exploited to its maximum potential.

SAVINGS: €403 per day, €226,469 in total.

652 Hospital bed days saved.

REFERENCES

- Vittoria Tibaldi MD PhD, Emerg Infect Dis 2009;180(2):175-82.