Introduction

Lower limb (LLC) cellulitis is a common bacterial infection responsible for 2-3% of hospital admissions, with an increasing incidence. According to the Australia Refrained Disease Related Groups (AR-DRG) data, cellulitis without or with cutaneous or severe complications, the number of episodes in Australia between 2013-14 were respectively, 60,634 and 13,981 (ABFW, 2014). The prevalence of concurrent Venous Chronic Disease (CVD) has been reported as a factor influencing clinical outcome with regards to treatment failure (relapse or recurrence). Despite this, assessment, documentation and management of CVD in patients presenting with LLC and concurrent CVD, is incredibly variable. This is despite the fact that targeting predisposing factors such as CVD, along with prompt antibiotic therapy is the most effective means of reducing complications and recurrences of cellulitis. The aim of this study was to investigate the impact of recognition and active management of CVD via compression therapy on the clinical outcomes of LLC.

Methods

The study was conducted in a large tertiary teaching hospital in two parts. The first part consisted of a qualitative prospective diagnostic accuracy study to assess the accuracy of diagnosis of concurrent CVD in LLC admissions over a 3 month period in 2015 was conducted. Patients admitted with LLC underwent an independent secondary assessment by experts, within 96 hours of admission to determine the presence of concurrent CVD. A review was undertaken of the admission diagnosis, documentation and subsequent management.

In the retrospective component of this research, the 200 cases identified for the case control study, the median age of patients was 50 years (27-98), with included 104 males (50.5%). They had other common co-morbidities as shown in Table 2.

Results

During the small prospective diagnostic accuracy study, there were 59 LLC admissions. Of these, 20 patients (34%) were found to have concurrent CVD by expert assessment (Figure 1). In only 5 patients was this actually documented prior to review and in no case was coordination of care to the commonly used CEAP classification documented. In the patients with CVD documented at the time of admission, 80% had compression commenced.

Analysis revealed that the presence of an ulcer is associated with an increased likelihood of having a relapse. Active CVD management was independently associated with a significantly decreased (OR 0.25, 95% CI 0.07-0.95) likelihood of relapse and recurrence (OR 0.29, 95% CI 0.12-0.71). The use of compression therapy (OR 3.34, 95% CI 1.55-7.20) greatly increased the likelihood of cellulitis treatment success. The proportion of patients with treatment success and compression therapy (73.8%, 45/61) was statistically higher than those without compression therapy (53.2%, 74/139). Multivariate analysis also revealed that presence of preexisting LL oedema was highly significant and almost quadrupled the risk of a recurrent event.

Discussion

To our knowledge this is the first study assessing the role of compression therapy in concurrent active CVD management on cellulitis outcome. This research shows that active management of CVD with compression improves LLC treatment outcomes, independent of other measures. This is consistent with other studies which have also found the local factors associated with CVD such as lymphoedema/ulcer to be associated with cellulitis recurrence. The prospective part of this study found however, that we are missing a great number of important management opportunities in these patients. At the time of admission, the LLC is being treated but not the CVD. It is only documented in a small percentage of patients in whom it is present and a contributing factor to the likelihood of LLC relapse or recurrence. This is despite the majority of patients presenting with LLC have advanced clinical signs of CVD. Both LLC and CVD are common conditions and are a huge economic burden on healthcare facilities. So when considering that treatment success is 3x more likely if concurrent CVD is appropriately managed, this study suggests that there is scope for huge financial savings as well as better outcomes for those patients if CVD is assessed for, documented and treated.

References

2. Results of the COPE trial published in the Lancet, recent study shows. Circulation (2010); 121, 1203-1209.