



## Service Priorities and Programmes Electronic Presentations

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### **Cryotherapy for Patients with Multiple Myeloma undergoing Autologous Peripherhal Blood Stem Cell Transplantation with High-dose Melphalan**

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#### **Introduction**

High-dose melphalan followed by autologous stem cell transplantation is a common treatment option for young patients with multiple myeloma. Melphalan >140mg/m<sup>2</sup> was reported to be associated with severe mucositis and increased morbidity[1]. Cryotherapy with ice chips or ice cold water prior to, during and after rapid infusion of mucotoxic agents with a short half-life, such as high-dose melphalan, was proven to reduce oral mucositis[1,2,3]. Cryotherapy can cause vasoconstriction and reduce blood flow to the oral cavity, leading to decrease exposure of buccal mucosa to the mucotoxic agent[1]. The optimum duration and intensity of cryotherapy has not been established. Based on existing evidence, patients are advised to start rinsing their mouths with ice cold distilled water at least 5 minutes prior to the infusion, during the infusion and for at least 30 minutes after completion of the infusion[4]. Cryotherapy was implemented for multiple myeloma patients undergoing autologous stem cell transplantation with high-dose melphalan in Department of Medicine, Queen Elizabeth Hospital in June 2014.

#### **Objectives**

To evaluate whether the use of cryotherapy can reduce mucositis and improve quality of care of multiple myeloma patients underlying autologous stem cell transplantation using melphalan as conditioning

#### **Methodology**

We retrospectively analyzed 14 multiple myeloma patients who received cryotherapy during autologous stem cell transplantation in Queen Elizabeth Hospital between 1 June 2014 and 31 August 2015. The degree of mucositis according to the National Cancer Institute (NCI) Common Toxicity Criteria, patients' self-reported pain scores and the use of opioids analgesics were recorded. Results were compared with 14 multiple myeloma patients who did not received cryotherapy during autologous stem cell transplantation between March 2013 and May 2014.

## **Result**

Table 1 summarizes the results.      No Cryotherapy    Cryotherapy    p-value    No. of Patients (N) 14    14 -    Median Age (range) 58.5 (48-66)    61 (56-66) -    Sex (M:F) 9:5    8:6    1.000    NCI mucositis grading (Grade 1-4), Median 2.5    1.0    0.000    Self-assess Pain scores (0-10), Median (range) 7.0 (4-9)    2.5 (0-8)    0.003    No. of Days with mucositis, Median (range) 10.5 (5-17)    7.0 (0-15)    0.054    No. of analgesics required, Median (range) 2 (1-3)    1 (0-1)    0.002    Opioids use 6    0    0.016    Febrile Neutropenia 7    5    0.704

Table 1. Summary of demographic characteristics and results

Cryotherapy was associated with significantly lower NCI mucositis grading (Fig.1) and self-assess pain score (Fig.2). Patients in the cryotherapy group tend to have shorter duration of mucositis and used fewer analgesics. None of the patients in the cryotherapy group required opioids for pain control.