Introduction
Ankle swelling is a common clinical problem in fracture ankle patients and also a leading factor of ankle pain exaggeration. Cryotherapy is one of the swelling control measures and intermittent ice pack has been used for years. Recently, a new ‘vasopneumatic cryotherapy’ is advocated to provide a better swelling control with the combination of continuous compression and cryotherapy. However, no high level studies were carried out to examine its effectiveness on fracture ankle cases.

Objectives
To evaluate the effectiveness of vasopneumatic and conventional cryotherapies on fracture ankle cases

Methodology
A quasi-experimental, prospective, parallel and open labelled study design was applied with ethical approval endorsed. Only emergency cases with closed and stable unilateral ankle fracture in QEH O&T department were recruited. Cases were randomized into experimental or conventional group. In experiment group, low compression pressure was started and stepped up to moderate if patients tolerated. In conventional group, ice pack was applied 3 times daily and 20 minutes each. Two clinical outcomes were examined. They were reduction in ankle girth (Primary outcome) and pain intensity (Secondary outcome) which were measured every 12 hours with “figure of 8” and visual analogue scale respectively during first 72 hours.

Result
From March to November 2014, 22 patients were recruited. After randomization, 12 patients were assigned to experimental group and 10 to conventional Group. There were no significance differences in demographic data between groups. For primary outcome, experimental group showed more reduction in whole study period with mean difference 7.39%. However, no significant differences were found. Importantly, it showed longer lasting effect and only took 24 hours to attain the similar reduction effect of conventional group in 36 hours, which implied experimental group had 12 hours gain. For secondary outcome, mean total reduction were 70.9% in experimental group and 49.6% in conventional group. Significant differences were found in first 48 hours with average mean differences 21.34%. Vasopneumatic cryotherapy is more effective and beneficial to fracture ankle cases. It should be applied at least 48 hours since admission as a cryotherapy protocol for better patient outcomes. Vasopneumatic cryotherapy also saves the nursing procedure of reapplication of crepe bandage and slab in every conventional cryotherapy. Manipulation to fracture site is minimized. Better patient safety is safeguarded particularly for unstable fracture cases.