



Service Priorities and Programmes
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Effectiveness of halo program as a definitive treatment to cervical unstable patients

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Introduction

Halo system was designed in 1959. It has been used as definitive treatment, pre-operation traction and post-operative adjunct treatment for cervical instability patients with 86% healing rate. Majority studies focusing biomechanical analysis and skull pin design for reducing complications were published. Common types of complication include pin loosening, pin site infection and dislodgement. In 1989, Botte et al. stated that complications were common², especially in pin loosening (36%), pin infection (20%) and pressure sore (11%). In 2011, Ho et al.³ evaluated 15 patients with halo orthotic treatment. Documented dislodgement by mal-position of patient and pin loosening was greatly reduced from 47% to 13% after implementation of guideline and discard re-use of skull pin. However, details about complication were inadequate.

Objectives

To evaluate the effectiveness of halo program as a definitive treatment with details of complication documentation from March 2011 to April 2012 in Queen Elizabeth Hospital.

Methodology

From 3/2011 to 4/2012, patient with cervical instability and required external immobilization by halo system, were included. Starting from assessment to removal of halo system was documented. Details of anthropometric data of patient, crown and vest selection, torque applied by O&T doctors, followup and complication type was included. Arthrodesis confirmed by radiograph.

Result

10 patients (6 males and 4 females) were included. Mean age was 62. Mean days of application were 64 days. Complication rate of dislodgement was 20% (N=2), finally resumed halo program until arthrodesis achieved. One patient suffered from both

dislodgement and pin loosening. Pin loosening was 10% (N=1), continued halo until arthrodesis achieved. 9 patients received 4 skull pins with 8 inch-lb torque. Compliances of followup inspection were good. Arthrodesis rate of this group of patient was compatible with literature. Halo program starting with patient assessment, halo crown application and followup inspection attributed to low complication rate. Details of complication types helped to trace the possible underlying reasons and design preventive measure. Halo program with joint collaboration between O&T doctors, P&Os and patients achieved high arthrodesis rate and low complication rate for cervical spine unstable patients as definitive treatment.