



An effective and practical patient immobilisation device for Magnetic Resonance Imaging procedures.

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1. Introduction

Magnetic resonance imaging (MRI) scans provide detailed evaluation of the body, and are often the imaging technique of choice in patients with neurological conditions. As MRI scans require patient cooperation to keep still for image acquisition, the MRI machines are equipped with Velcro body immobilisation straps (140x40cm). These straps do not adequately restrict patient movement, with potentially increased need for patient sedation and/or repeat scanning. The choice of Velcro material does not allow the contraption to be cleaned and disinfected after usage. We adapted the straps to enable safe, clean and effective immobilisation for our patients requiring MRI examinations.

2. Method

Patients are required to keep still during the MRI scan in order to obtain high-quality images for accurate diagnosis. However approximately 30% of our inpatients due to their neurological conditions, could not cooperate and keep still during MRI procedures.

We have introduced a safe, effective and practical patient immobilisation device to address the current limitation.

3. Results

The newly designed immobilisation device was introduced in 2015. It has significantly increased the number of successful scans in uncooperative patients as compared to the old straps. The “life expectancy” of the old straps is much shorter (six months) as compared to the new device (> one year), which cost only 20% of the old one.

Comparison of Velcro and PVC strap		
	Velcro Strap	PVC Strap
Durability	6 months	> 1 year
Cost	X	1/5 of X
Successful scan	↓	↑

Comparison between Velcro strap and PVC strap		
	Velcro strap	PVC strap
Dimension	140cm x 40cm	120 x 43cm
Method of contraption	Velcro	2 sets of adjustable straps with buckles
Material	Not water proof	Water proof
Disinfectant	Not cleanable with disinfectant	Cleanable with disinfectant
Sizes of patient	Limitations for very thin and obese patients	Fits all sizes



4. Conclusion

The newly designed immobilisation device effectively reduces patient movement and scanning time. It also helps to reduce number of cancelled, rescheduled and repeat scans.