Robot patient simulate different symptoms of paralysis for transfer Training

With the background that approximately 1 in 50 people have currently been diagnosed with symptoms of paralysis, it is important to train the nurse how to transfer of the different type of paralysis patients. The patient transfer is one of the complicated and difficult skills. To learn this skill requires plenty of practices and experience in manual patient handle [1]. However, in the school education, nursing students cannot practice the skill with real patients. Instead, they learn the skill with mock patients acted out by student or teacher who cannot precisely reproduce the paralysis patients. For example, the health people are hard to imitate the unstable falling down. Therefore, to improve this skill of nursing students, our study aims to develop a robot patient that enables to reproduce paralysis patient and apply into training.

To develop a robot patient which can accurately reproduce hemiplegia and quadriplegia patient, the prototype robot [2] should be improved. The prototype did not have the waist joint to reproduce the unstable movements of paralyzed patients [3], such as trunk's tilting toward paralyzed side and falling down. Therefore, we proposed the mechanical design of waist based on the compliant joint (Fig. 1). The reasons of utilizing the complaint joint were to reproduce the inherence compliance of human. In compliant joints, the springs were equipped and the springs enable the compliance feature as human. Fig. 2 shows the robot patients with the waist joints. The trunk moving of the robot can be seen in our demo video. For the future works, we intent to imitate more various patients via this robot to train the nursing student learn the transfer toward different patients.

Key Words: Robot patient, Education system, Nursing skill, Skill acquisition, Paralysis simulation

Reference

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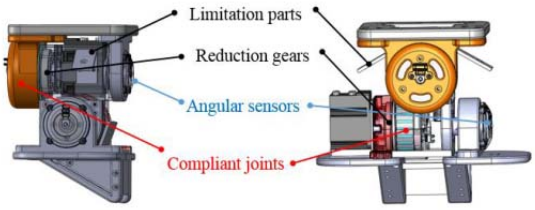

Fig.1. Mechanical design of waist joint

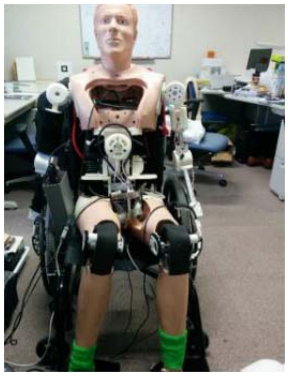

Fig.2. The robot patient for training