

Highlight of Occupational Therapy Symposium 2002

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Geriatric Seating Intervention – A New Approach

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Seating problems are common among elders living in nursing homes. Caregivers usually use restrains to "secure" the elderly person to the chair. This will easily cause pressure sores. Elders having seating problems are usually referred to occupational therapists for the assessment and management of the seating problems.

Conventional Approaches

Conventionally there are three approaches in the management of seating problems:

- a) modification of the existing chair
- b) purchase of a new chair that best fits the elderly person
- c) tailor-made a chair for the elderly person

There are limitations in the conventional approaches. In the first approach, the chair may not be modifiable in most circumstances. In the second approach, purchasing a suitable chair for a frail elderly with multiple contracture is not always possible in the market. In the third approach, tailor-made a chair can solve seating problems if the measurements and specification are right. However, tailor-made a chair takes time. The condition of the elderly person may change during the fabrication period. Once the chair is made, there will be little room for modification. Therefore, the chair cannot be used by another person. Furthermore, tailor-made a chair is always expensive.

The New Approach

A Modular and Aadjustable Chair (MAC) was developed by the Seating Service team of the Occupational Therapy Department of Ruttonjee and Tang Shiu Kin Hospitals. Figure A shows the final design of the MAC. The MAC

can be assembled to allow "one size fitting all" and can be available soon after seating assessment. The chair can be re-adjusted to fit the person when the elderly person's condition changes, e.g. the tilting of the chair can be increased to accommodate the person's change in trunk control. The chair can be re-adjusted to fit another person as well when the elder no longer needs the chair.



Figure A.

Study of the Effectiveness of the MAC

The effectiveness of the MAC was studied in 30 residents of the worst sitting posture of 5 private nursing homes. Subjects were randomly assigned to control group and experimental group. There were 15 subjects in each group.

Subjects of the experimental group received the MAC and the control group only received evaluations. The followings were outcome indicators:

- (1) An evaluation questionnaire was completed for subjective measurement of the change in sitting posture by independent raters - Community Nurses of the Hong Kong East Cluster of Hospital Authority.
- (2) Sitting Postural Control Measure (SPCM) was used for objective measurement of the change in sitting posture.
- (3) Pressure mapping was used to measure the change in sitting pressure.
- (4) Digital photos was used to record the number of restrainers used and the sitting posture of the subjects as well.



Result

The experimental group was superior to the control group in terms all of the four outcome indicators: a) Number of restrainers used b) SPCM c) Maximum sitting pressure and d) Evaluation Questionnaire results.

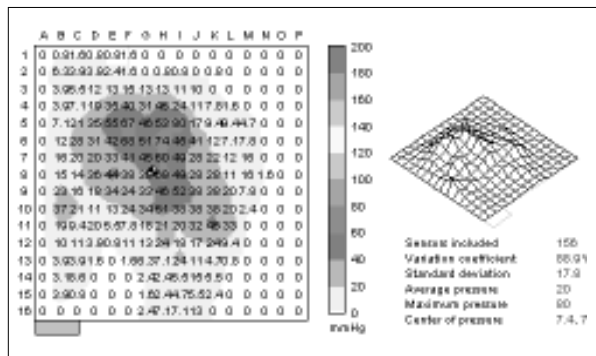
The sitting posture of a subject before and after the MAC was fitted on her is shown below:



Pre-study photo



Post-study photo



Conclusion

The MAC is an effective mean of managing seating problems in frail elders. The design of MAC has brought along several other improvements in the management of seating problems in frail elders as well. The improvements are:

- decrease waiting time for the elders to receive a suitable and comfortable chair
- decrease risk of developing pressure sores
- allow on-going re-adjustment of the chair if necessary
- save therapist's time in searching for suitable models of chairs
- save assistant's time in modifying problem chairs
- recycle-use of chairs that no longer needed by the elderly person
- a new approach of geriatric seating intervention in Hong Kong

A Study of Effectiveness of Hip Protectors and Comparing the Acceptability of Elderly in Hospital and Elderly Homes Settings

Cecilia SUM, Jean WOO, Lily CHUNG, Kenny IP, Samuel YIU and Lorna HO

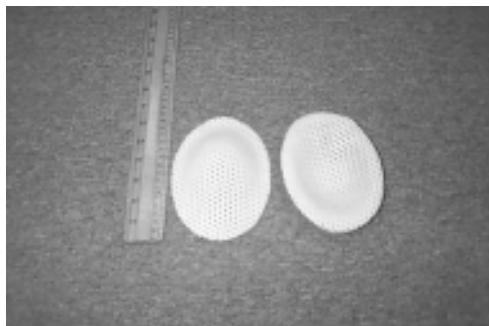
Shatin Hospital for Hip Protector Study Group

Many overseas studies suggested that hip protector might lower the risk of hip fracture in elderly who are prone to fall (Lauritzen, 1993 & Ekman, 1997). These products may not fit well the local Hong Kong Chinese elderly because of the different body build compared with the Caucasian populations.

The aim of this study was to test the effectiveness of a local designed hip protector and compare the acceptability of clients in hospital and elderly homes.

Phase I

The Occupational Therapy Department in Shatin Hospital designed the hip protectors and short pants (photo 1 & photo 2), taking into the account of the body



build of elderly Chinese, the hot and humid weather. Short pants were made of stretchable cotton that provides good fit to hold the hip protectors in place, but is not too tight, in six sizes. The protectors, in the shape of a shell, made of perforated thermoplastic materials. The dimension was 16.5cm long, 11 cm wide, with a height of 2 cm. The advantage of this material is that the holes provide good ventilation, and has some flexibility allowing distortion against the impact of a fall.

With the assistance from Rehabilitation Engineering Centre, Hong Kong, we conducted a comparison study on the shielding force of the self-made and commercial hip protectors. The percentage of shielding against an impact force of 3 KN of this hip protector was compared with models from Australia: a shell model made from plastic, plastazote, foam, airbags, and was found to be 67%, the highest among all the protectors tested.

Phase I Result: **No Protector- 2985N**

Hip Protector	Shield Force (N)	% of Shielding
Air bags	1118.9	59.1
Shell (Orfit perforated)	945	67.3
Shell (PV plastic)	990	65.8
Foam (thick)	1269.8	56.1
Foam (thin)	1532.9	47.0
Plastazote (thick)	1191.5	58.8

Phase II

A randomized control trial study involved 17 Institutions (8 convalescent hospitals and 9 elderly institutions) for 1.5 years. 654 data was collected. 302 subjects in the treatment group 352 subjects in the control group. Subjects were elderly with risk of falls, could ambulant (with or without aids). They were asked to wear the hip protector 24 hours each day. Nurses/personal care assistance recorded the compliance: the number of hours per day the subjects wore the hip protectors. The staff also recorded the incidents of fall and fractures during the period of study. A questionnaire was also administered to each subject regarding the reasons for non-compliance.

	Study Group	Control Group
Male	36.7%	34.7%
Female	63.3%	65.3%
Mean Age	78.3 yrs	79.6 yrs
Mean Body Weight	51.4 Kg	49.7 Kg

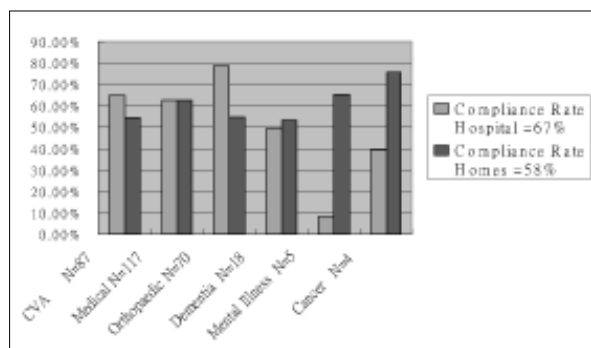
(P>0.05)

Results

The local hip protector was found effective as the study group had only 2 femoral fractures while the control group had 13 femoral fracture. The relative risk fracture = 0.179 (95% CI = 0.04 to 0.788) The relative risk reduction = 0.82 (95% CI = 0.21 to 0.95). The absolute risk reduction = 3.03%. The Number need to treat (NNT) was 33.

The overall compliance varies from 55% to 78% which did not varied with the seasonal changes. The average acceptance rate of hospital clients was 66.5% while the average compliance rate for elderly institution was 58.1%. Several reasons account for the difference: supportive attitude from staff, variation on hospital stay and diagnostic group.

The main reasons for non-compliance include discomfort, problems with incontinence so that the pants became wet, inconvenience in sleeping. 77% of subjects believed that the hip protectors would offer protections in the event of a fall.



Conclusion

Overall, the present design well fitted the body built of Hong Kong Chinese, bio-mechanical properties assessed and the acceptance was slightly higher than reported overseas.



Faculty of Dentistry

The Faculty of Dentistry at the University of Hong Kong has established itself as a regional centre of excellence in Asia for postgraduate training, both in clinical training and research. A variety of full-time (FT) and part-time (PT) taught postgraduate programmes are opened to admission in 2002-2003 as follows:

Master of Dental Surgery in the fields of: Endodontics (2 yr FT); Oral and Maxillofacial Surgery (3 yr FT); Paediatric Dentistry (2 yr FT); Periodontology (2 yr FT); Prosthodontics*; and Public Health Dentistry*

Master of Orthodontics (3 yr FT)

Postgraduate Diploma in Dental Surgery in the fields of: Dental Public Health; Oral Radiology; Oral Surgery; and Paediatric Dentistry (all 1 yr FT or 2 yr PT)

Advanced Diplomas in Endodontics; Orthodontics; Paediatric Dentistry; Periodontology; and Prosthodontics (all 1 yr FT or 2 yr PT)

Research postgraduate programmes are also available for Master of Philosophy (2 yr) and Doctor of Philosophy (3 or 4 yr), again in various subject areas.

Application closing date: **June 30, 2002**

Annual Fee (subject to University approval):

Taught Postgraduate Programmes: HK\$ 65,000 (full-time) and HK\$32,500 (part-time) for 2002-2003. Those admitted in 2002-2003 to a taught postgraduate course that lasts longer than one year will pay the same fee throughout the course.

Research Postgraduate Programmes: HK\$42,100

Application forms and further information are available from the HKU homepage <<http://www.hku.hk/rss/pp2002/>>

For inquiries, please contact the Faculty: Tel: (852) 2859 0347, Fax: (852) 2517 0544

E-mail address: dental@hkusua.hku.hk

Note: * = 2 yr FT or 4 yr PT

Thyroid Disorders and Pregnancy Outcome

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Specialty Editor, HKMD

Incidence

Thyroid disorders are encountered in 2% of our parturients. Hyperthyroidism is the most common condition, the majority of which is due to Graves' Disease. Hypothyroidism on the other hand is usually consequent to thyroid ablation for the treatment of Graves' Disease.

Adverse Effect of Thyrotoxicosis on Pregnancy

Uncontrolled hyperthyroidism can lead to congestive heart failure, thyrotoxic crisis, preterm labour, pre-eclampsia, fetal growth retardation, and increased perinatal mortality. It is therefore important to render the patient euthyroid as soon as possible. Even when euthyroidism is achieved, the risk of low birth weight infant is still increased compared with those who were euthyroid before pregnancy.

Presentations of Thyrotoxicosis during Pregnancy

The features of hyperthyroidism may be subtle and common to pregnancy, such as tachycardia, palpitation, systolic hypertension, cardiac murmur, tremor, excessive sweating, heat intolerance, nervousness, insomnia and emotional lability. Poor weight gain or weight loss despite good appetite, and frequent bowel motion in contrast to the tendency towards constipation are highly suggestive. Some cases of Graves' Disease can also present as hyperemesis gravidarum, and thyroid storm can present as eclampsia.

Management of Thyrotoxicosis

Patients on antithyroid medications should be monitored by clinical progress e.g. weight gain and fetal growth, and maternal serum TSH and free T4 concentrations at 4- to 8-weekly intervals. It may be necessary to adjust the dose of antithyroid medications in each trimester, and the patients should best be managed in a combined team with endocrinologists. Once euthyroidism is achieved, the dose could be adjusted to the minimal effective maintenance dose, and treatment should stop at 36 weeks. If euthyroidism have not been achieved, or when preterm delivery is indicated, treatment should be continued, perhaps at a reduced dose. As well, for patients

with a relatively short duration of treatment, the dose should not be reduced too rapidly, as relapse may occur in the last trimester even before cessation of treatment.

Management of Hypothyroidism

Most women with hypothyroidism have a history of thyroid disorders or surgery before pregnancy, and are often on thyroxine replacement already. The features of hypothyroidism are usually subtle, such as excessive fatigue, dry skin, severe constipation, cold intolerance, fluid retention, irritability and paraesthesia. Inadequate thyroxine replacement or subclinical hypothyroidism can be associated with pre-eclampsia, anaemia, fetal growth restriction, placental abruption, and neonatal morbidity, all of which can be prevented by adequate replacement therapy. As women already on thyroxine replacement before pregnancy may need to have dosage increments with advancing gestation, monitoring with TSH level allows fine adjustment of the thyroxine replacement dosage, which is usually between 0.1 to 0.2 mg daily. Hypothyroidism may also present initially during pregnancy. If a woman without known thyroid disorders has excessive fluid retention early in pregnancy, bradycardia, cold intolerance instead of the usual heat intolerance, and a low body temperature, or proteinuric pre-eclampsia with slow or biphasic tendon reflex, hypothyroidism should be excluded.

Effect of Fetus and Neonate

Irrespective of the maternal status, the fetus and neonate could still be affected by maternal thyrotropin stimulating antibodies (TSAb) that cross the placenta and stimulate the fetal thyroid, resulting in fetal and neonatal thyrotoxicosis even in infants born to euthyroid or hypothyroid mothers who had been treated by partial thyroidectomy. The clinical features of fetal Graves' Disease includes a persistent fetal tachycardia, fetal goitre and frontal bossing, premature craniosynostosis, growth restriction and heart failure. There is increased perinatal mortality, preterm labour and fetal growth restriction, and in-utero treatment may be necessary. All infants born to mothers with a history of Graves' Disease should undergo thyroid assessment after birth.