CORRESPONDENCE

We welcome letters to the Editor concerning articles which have recently been published. Such letters will be subject to the usual stages of selection and editing; where appropriate the authors of the original article will be offered the opportunity to reply.

Letters should normally be under 300 words in length, double-spaced throughout, signed by all authors and fully referenced. The edited version will be returned for approval before publication.

GRADED COMPRESSION STOCKINGS FOR THE PREVENTION OF DEEP-VEIN THROMBOSIS

Sir,

We read with interest the article by Hui et al 1 in the July issue entitled ‘Graded compression stockings for prevention of deep-vein thrombosis (DVT) after hip and knee replacement’. We feel that their data do not support the conclusion that “with the possible exception of below-knee stockings in knee replacement patients, graded compression stockings are ineffective as prophylaxis for DVT.”

The finding of an incidence of proximal DVT of 0% in the control groups contradicts all the other published series which have an incidence of ipsilateral DVT of greater than 50% after total hip replacement (THR) 7 and of greater than 35% after total knee replacement (TKR). 4

The authors included individual limbs in 12 patients who had unilateral venography, but do not say to which therapeutic group the patients belonged or whether venography was performed on the ipsilateral or contralateral leg. The results are presented as percentages rather than absolute numbers; if we convert to absolute numbers the incidence of DVT for the ipsilateral leg should be as shown in Table I.

Table I. Incidence of DVT in the ipsilateral leg for THR and TKR

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Above-knee GEC</th>
<th>Below-knee GEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR</td>
<td>22</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>Proximal DVT</td>
<td>0 (0%)</td>
<td>3 (13%)</td>
<td>5 (28%)</td>
</tr>
<tr>
<td>Calf DVT</td>
<td>6</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>All DVT</td>
<td>6 (27%)</td>
<td>9 (22%)</td>
<td>9 (50%)</td>
</tr>
<tr>
<td>TKR</td>
<td>32</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Proximal DVT</td>
<td>4 (12.5%)</td>
<td>6 (30%)</td>
<td>2 (9%)</td>
</tr>
<tr>
<td>Calf DVT</td>
<td>7</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>All DVT</td>
<td>24 (78%)</td>
<td>13 (65%)</td>
<td>15 (68%)</td>
</tr>
</tbody>
</table>

The numbers are so small that it is not possible to draw any conclusions on the efficacy of graded elastic compression (GEC).

The use of venography on the fifth to the seventh days after operation may be an additional factor accounting for the low incidence of DVT. Most proximal thrombi occur late and the ratio of calf to proximal thrombi depends on whether venography is performed early or late after surgery. 1

In a recent randomised study by our group 5 78 patients having an elective THR were randomised into three groups. The incidence of proximal DVT as shown by venography between the 6th and 12th days after operation was 57% (n = 14) for the placebo, 28% (n = 32) for low-molecular-weight heparin (LMWH-Enoxaparin 40 mg od) and 12.5% (n = 32) for LMWH and full-length GEC (p = 0.005 for control v LMWH and GEC). This investigation, however, although a level-I study, also had small numbers.

We agree with the authors’ statement in the introduction that “it is illogical to extrapolate results from one specialty to another”. In the discussion, however, the authors mention fewer of lower-knee stockings are cheaper and previous studies have shown them to be as effective as above-knee stockings 5 9 and that our results confirm that there is no significant difference between the two types of stocking in terms of efficacy. 4 The abstract of McNally et al 10 did not attempt to compare the efficacy of GEC against DVT but merely to show an increase in blood flow with its use. The first two studies were performed on patients undergoing abdominal surgery in which the incidence of DVT in the absence of prophylaxis was 25%. 7 8 Failure of these two studies to show a difference between the two types of stocking does not mean that they are equally efficient since the number of events in these studies is also small.

The degree of efficacy of GEC on its own or in combination with other prophylactic methods can only be revealed if studies are constructed with adequate numbers.

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Authors' reply:

Sir,

We thank Dr Kalodiki and Mr Nicolaides for their letter. Before replying to some of the more important queries, we wish to clarify a few errors of interpretation. The printing error in Table II has already been addressed and regarding the incidence of DVT in the control group of THR patients, the overall rate was 27% as shown in Table III.

In 12 of our patients, venography failed in one leg. This problem was encountered in all the study groups and most of the failures were on the contralateral leg. There was no specific bias towards any particular group and we felt that it was unnecessary to emphasise this as the results would not have been altered.

As for the timing of venography, Sikorski, Hampson and Staddon found that the onset of thrombosis peaked on the fourth postoperative day in patients who had received no prophylaxis and on the sixth day for those on intermittent pneumatic compression. Based on their findings, we felt that venography performed on the sixth or seventh postoperative days would maximise our chances of detecting DVT.

Our study included 177 patients and is the largest of its kind. The number in each individual group is relatively small and liable to type-II error. When we calculated for the power of the study, we felt that the routine use of graded compression stockings could only be recommended if they reduced the DVT rate to around 20%. Since the average quoted rate of DVT after hip and knee replacement without prophylaxis is around 60%, a threefold reduction was required. Using this assumption, a sample size of 27 in each group would have given a power of 80% to the study. It soon became apparent, however, that the difference in the rate of DVT between the stocking group and the control group was so small that it would require an extremely large number of patients to show a difference. For example, to demonstrate a reduction from 60% to 40% would require 214 patients in each group and from 30% to 20% 626 patients in each group (Epi-info statistical package, Centers for Disease Control and Prevention, Atlanta, Georgia). Ultimately, a test for a positive significance only implies that there is a difference between the groups which is unlikely to have arisen by chance. In this type of study the magnitude of the difference is more important. When the overall effect of graded compression stockings was analysed by combining all the groups, the stratified Mantel-Haenzel chi-squared test showed no significant difference between the control and stocking groups (p = 0.274). The odds ratio was 2.02 (95% confidence limits 0.49 to 8.57) which would indicate that there is a potential twofold increased risk of DVT if stockings are worn.

We included below-knee stockings in our study because they are often used in orthopaedic surgery and there have been no data on their efficacy. In terms of the overall rate of DVT, we found that above- and below-knee stockings were equally ineffective. While we appreciate the potential problem with type-II error when comparing the two types of stocking, it was only a matter of which was the worst of two unsatisfactory methods.

We were interested to read the article by Hui et al in the July issue entitled 'Graded compression stockings for prevention of deep-vein thrombosis after hip and knee replacement' in which they state that graduated compression stockings did not significantly reduce the incidence of deep-vein thrombosis (DVT) after hip and knee replacement. They did not mention, however, which type of stocking was applied, although they thank Brevet Hospital products for partly funding the study. We have shown in unpublished studies that above-knee TED stockings are much more effective than above-knee Brevet stockings, possibly because of different construction techniques at the upper end of the stockings.

In a recent study in which two groups of orthopaedic patients were given heparin and one group were given stockings, TED above-knee stockings produced a significant additional benefit to heparin alone. We therefore feel that Hui et al have shown that the Brevet stockings are ineffective in reducing DVT. Not all types of thromboprophylactic stockings are the same.

K. BURNAND, MS, FRCS
St Thomas’ Hospital
London, UK.

Author's reply:

Sir,

We thank Messrs Burnand and Eastham for their comments. We are aware that graded compression stockings from different manufacturers produce very different pressure profiles. In 1992 Thomas performed a comprehensive testing of ten brands of stocking using the Hatra system (British Standard 6612:1985) and compared them with the 'ideal' pressure profiles recommended by Sigel et al and by Lawrence and Kakkar. He found that Brevet stockings were superior to other brands, producing compression profiles close to the ideal. He also singled out TED stockings (Kendall) for criticism stating that 'it would appear that TED stockings do not always produce the recommended pressure levels and in some instances may even produce a small reverse pressure gradient'.

We were not satisfied with in vitro testing using the Hatra system and have performed our own study in vivo on pressure profiles using human volunteers. We compared the performance of TED (Kendall), Tx (Brevet) and Anti-Em (Biersdorf) stockings and found TED (Kendall) stockings to be inferior to the other two brands. This study was presented to the British Orthopaedic Research Society in September 1996.

Brevet stockings were used in our randomised trial and they have consistently outperformed TED stockings both in vitro and in vivo. Since they were found to be ineffective in total hip and total knee replacements we would not expect other brands of stocking to behave differently.

A. C. W. HUI, MA, FRCS Ed
P. D. TRIFFITT, MD, FRCS
P. J. GREGG, MD, FRCS
Glenfield Hospital
Leicester, UK.


NON-CEMENTED REPLACEMENT OF THE TRAPEZIOMETACARPAL JOINT

Sir,

I have a number of comments to make regarding the article by Wachtel and Sennwald in the September 1996 issue entitled ‘Non-cemented replacement of the trapeziometacarpal joint’. They write that I introduced an uncemented prosthesis in 1994, but in fact it was in 1990. They describe the centre of rotation of the prosthesis as in the trapezium. It is evident from Figure 2 that this is at the level of the joint space, half way between the two physiological centres of rotation of the trapeziometacarpal joint. They implanted the smallest size of metacarpal stem in most of their cases. In my series size 1 was used exceptionally, suggesting that use of the smallest size may explain the high rate of subsidence.

A long-neck prosthesis were used in nine cases. This model was designed for cups implanted in the scaphoid after trapeziectomy. The use of this size with an osteotomy only 7 mm distal to the joint gives excessive length and increases the loading. They used the larger size in six cases, but I have found that this is rarely necessary and I am concerned about the inadequacy of the residual bone stock. They describe four dislocations. In a multicentric study of 188 implants there were 24 failures and three dislocations due to unsatisfactory orientation of the cup in the trapezium. Modification of the stem with a dorsal keel is biomechanically unsound. It will not prevent dislocation and the smaller stem additional length was needed to preserve tension, but we agree that a long neck induces greater shear forces than a short neck.

We have not found that addition of a keel increased subsidence. We observed dislocation with cups perfectly aligned in the trapezium, and suggest that a variety of factors may be responsible for this occurrence.

S. W. Wachtel, MD
Spital Altstätten
Altstätten, Switzerland.


SIMPLE BONE CYSTS TREATED BY PERCUTANEOUS AUTOLOGOUS MARROW GRAFTING

Sir,

I write concerning the article by Lokiec et al in the November 1996 issue entitled ‘Simple bone cysts treated by percutaneous autologous marrow grafting: a preliminary report’. I am concerned that particulate matter may enter the circulation during injection of bone marrow or substances such as demineralised bone matrix (Grafton). I have noted on many occasions how quickly contrast medium drains from the cyst into quite large veins when undertaking a cystogram before injection of steroid. I have seen no discussion of this phenomenon in the literature. Have the authors any comment on this?

J. P. Lubicky, MD
Shriners Hospitals for Children
Chicago, USA.


Author’s reply:

Sir,

I thank Dr Ledoux for his letter which gives us the opportunity to comment further on the problems concerning cementless trapeziometacarpal arthroplasty. The Ledoux prosthesis was first implanted by its developers in 1990 and we introduced it in our clinical trial in 1992. To our knowledge, the first international report was published by Ledoux in 1994.

The prosthesis is designed according to the principle of a ball and a socket. The head, placed in the trapezium, constitutes the centre of rotation and lies slightly distal to the surface of the excised joint. The new joint is constrained and does not reproduce the pattern of motion of the trapeziometacarpal joint. In a neutral position, the axis of the cup is in line with the axis of the stem unlike the intact trapeziometacarpal joint in which the axis of the first metacarpal is lateral to the axis of the trapezium. Implantation of the cup in the middle of the articular surface of the trapezium, combined with the use of a linear prosthesis, leads to a medial translation of the first metacarpal, with consequent shear stress and loosening. Similar problems are seen with the cemented de la Caffinière prosthesis. We feel that the ball-and-socket design may be responsible for the loosening.

Small cup sizes are preferable to preserve bone stock, but we found that use of the larger size was necessary to obtain a sufficient press-fit. The long-neck prosthesis was only used when additional length was needed to preserve tension, but we agree that a long neck induces greater shear forces than a short neck.

We have never seen the phenomenon described by him nor have we heard of it from anyone who started using the method described in our article. We have specifically enquired of members of the paediatric anaesthesiology unit who examined the records of patients who had had percutaneous autologous marrow grafting for the treatment of simple bone cysts. They did not record any changes in the monitoring during the procedures. Although I
understand the theoretical concern raised in Dr Lubicky’s letter, I have not seen any such complications.

S. WIENTROUB, MD
Tel-Aviv Sourasky Medical Centre
Tel-Aviv, Israel.

CARE OF THE POLYTRAUMATISED PATIENT

Sir,

We read with interest the article ‘Care of the polytraumatised patient’ by Tscherne and Regel1 in the September 1996 issue. Much of their approach parallels ATLS teaching.2 Their practice, however, differs in some potentially important respects. We would value their answer to the following questions:
1) Do they routinely immobilise the cervical spine in polytraumatised patients?3
2) If so, do they obtain anteroposterior and open-mouth peg views (as well as a lateral view that includes the cervicothoracic junction) before removing the immobilisation?
3) Have benefits been shown for early pulmonary artery catheterisation in these patients?
4) How often is useful information obtained from early skull radiography?

R. D. HARDERN, MRCP
A. J. GRAY, FRCS
St James’s University Hospital
Leeds, UK.


Authors’ reply:

Sir,

We thank Dr Hardern and Mr Gray for their letter. To answer their specific points:
1) Yes, we do routinely immobilise the cervical spine in all polytraumatised patients in whom cervical trauma could not be ruled out at the scene. The organisation of German emergency physicians recommends immobilisation in all patients except those conscious at the scene and without clinical symptoms. The indication for intubation is, in our opinion, independent of possible cervical injuries.
2) Immobilisation is removed temporarily for initial radiographs. An AP view of the cervical spine is routinely performed together with the AP skull film. Open-mouth peg views are only taken when a fracture of the first or second cervical vertebra is suspected from the plain AP and lateral views. Fluoroscopy in hyperextension and flexion help to rule out a ligamentous injury.
3) The diagnostic and therapeutic value of the pulmonary artery catheter has been shown by various authors including Sturm et al.1 The most important aspect is the advanced monitoring for optimal fluid management in polytraumatised patients. Especially with associated thoracic injuries the central venous pressure (CVP) is not reliable in determining volume therapy, since the pulmonary vascular resistance is mostly increased from the beginning, leading to a false CVP value and the impression of volume overload in these patients. Also, specific calculated values including the heart index, the systemic vascular resistance and the arteriovenous oxygen ratio are reliable indicators of prolonged shock and help to calculate the correct therapy in these cases.
4) Early skull radiography is essential especially for the diagnosis of maxillofacial fractures, but even in conscious patients with minor neurological symptoms a fracture of the skull can occur. In this case the early diagnosis would be missed. Consequently, a CT scan is undertaken since a missed diagnosis could lead to various hazardous effects such as overlooking epidural bleeding.

H. TSCHERNE, MD
G. REGEL
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Hannover, Germany.

ROTATIONAL ACETABULAR OSTEOTOMY FOR SEVERE DYSPLASIA OF THE HIP

Sir,

We write to you regarding the paper in the November 1996 issue entitled ‘Rotational acetabular osteotomy for severe dysplasia of the hip with a false acetabulum’ by Shindo et al.2 Figure 1 in this paper showing low and high false acetabula is a copy of Figures 2 and 3b of our paper3 in the March 1988 issue entitled ‘Low friction arthroplasty for old untreated congenital dislocation’.

This reproduction of our illustration has been done without either our or the publisher’s permission. Furthermore, Dr Shindo et al do not include any reference to our paper.

G. HARTOFILAKIDIS, MD, FACS
K. STAMOS, MD
T.T. IOANNIDIS, MD
University of Athens
Athens, Greece.


Authors’ reply:

Sir,

We offer our sincere apologies to Dr Hartofilakidis and his colleagues for our failure to acknowledge that Figure 1 in our paper was originally theirs. Unintentionally, we used as our Figure 1 a figure redrawn several years ago from their original1 without obtaining their permission.

We carelessly failed to remember that its source was the earlier paper. We are deeply embarrassed and apologise for appearing deliberately to use the illustration without permission. This was never our intention.

H. SHINDO, MD
H. IGARASHI, MD
H. TANEDA, MD
H. AZUMA, MD
Saitama Medical School
Saitama, Japan.