Liver disease and pulmonary hypertension

EDITOR—I read with interest the leading article on hepatopulmonary syndromes (Gut 2000;46:1–4). The author describes explicitly the various associations between the liver and lung disorders. Several clinical studies and autopsy findings have demonstrated a 20% higher prevalence of pulmonary hypertension in patients with advanced liver disease and portal hypertension, the histological findings of which show features similar to those seen in pulmonary hypertension from other causes.1 However, the underlying mechanism(s) responsible for pulmonary hypertension in these patients is not known. It has been recently hypothesised that increased circulating levels of noradrenaline (NA) or increased activity of u, adrenergic receptors in the pulmonary arteries can produce excessive pulmonary vasoconstrictor and proliferative responses leading to pulmonary hypertension.2

It is generally believed that pulmonary hypertension results from defective hepatic elimination of a vasoconstrictive agent produced by the liver.3 However, the underlying mechanism(s) responsible for pulmonary hypertension has often been observed during the anhepatic phase of liver transplantation4 while several studies have demonstrated that pulmonary hypertension often resolves completely in patients with liver cirrhosis following liver transplantation.5 Formation of a portocaval shunt without liver cirrhosis has also been shown to be increased by up to 10-fold in experimental animals6 while several studies have shown to produce severe pulmonary hypertension in the conscious dog.7

It is also generally believed that pulmonary hypertension results from defective hepatic elimination of a vasoconstrictive agent produced by the liver.3 However, the underlying mechanism(s) responsible for pulmonary hypertension has often been observed during the anhepatic phase of liver transplantation4 while several studies have demonstrated that pulmonary hypertension often resolves completely in patients with liver cirrhosis following liver transplantation.5 Formation of a portocaval shunt without liver cirrhosis has also been shown to be increased by up to 10-fold in experimental animals6 while several studies have shown to produce severe pulmonary hypertension in the conscious dog.7

UDCA, PBC, and biochemistry, what does normal mean?

EDITOR—We read the commentary by Lindor (Gut 2000;46:6–8) with great interest and would like to raise the following points.

Lindor is correct, and in our study7 patients with primary biliary cirrhosis (PBC) who initially had less abnormal liver function tests responded more favourably to ursodeoxycholic acid (UDCA) than those who had initially greater abnormal liver function values. We believe this is interesting as it is known that patients with lower abnormal liver function tests respond less favourably (for example, chronic autoimmune hepatitis to treatment). In chronic cholestasis (glucocorticoids) and that values do not decrease in a linear manner. Furthermore, it is well known that UDCA in PBC does not cause normalisation of liver function tests in most patients, and to date there has been no extensive examination of full and incomplete responders. Only in one study was this area addressed but few liver parameters were studied and there was only a short follow-up period.6

Lindor states that our finding of no correlation between the percentage of UDCA in serum bile acids and biochemical response is different from other reports. However, he quotes only one study. Based on data from the literature, we reported in our paper that it is improbable that a further increase in bile acid concentrations in serum and a shift from the more hydrophobic to a more hydrophilic bile acid pool could be responsible for a complete response to UDCA therapy. Further results are awaited.

Lindor speculates that in our study the high percentage of patients with early stage PBC could have been an artefact because there was no correlation between histological stage at entry and biochemical response. We started UDCA therapy for PBC in 1978/79. In that time we have had 120 patients under constant supervision and over this period of 21 years only three patients have undergone liver transplantation and two have died as a result. A late stage liver disease group to which our patients underwent regular liver biopsies and some even laparoscopy. That we have seen no more deaths or complications can only be explained by the fact that patients were in the early stages of the disease and that they were treated continuously with UDCA.

Lindor says that improvement in liver histology in our patients treated with UDCA (p<0.05) differs from the overall experience in other studies. However, patients were discriminated between incomplete and complete responders whereas in other trials complete and incomplete responders were evaluated together and compared with an untreated group.

In addition, Lindor is surprised that the histological progression reported in our series, even in incomplete responders, was slow. Based on modelling studies of untreated patients with PBC, he stated that substantial further progression occurs in patients with lower abnormal liver function tests (for example, chronic autoimmune hepatitis). This is in contrast with a study by Lindor himself (personal communication, November 9, 1999, 5th Annual Meeting, AASLD, Dallas, Texas) where he told us that in his incomplete responders the disease progressed in 38% of patients and in full responders in only 5%. We believe our results are comparable. In addition, Lindor, in full responders we found progression of the disease in 4% and in 11% of incomplete responders; in complete responders progression occasionally took place not only from one stage to the next, but to the next but one stage. As patient numbers were small in our study, we did not give percentage values. Hence it is clear from our results the significance of normalisation of liver function tests.

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REFERENCES

www.gutnlj.com
The most important findings in our study were that: (1) UDCA improved cholestatic indices in incomplete and full responders in a strictly parallel manner; (2) in incomplete responders, the curves levelled off after about 3–5 years and did not normalise; and (3) cholecystokinin levels in patients with incomplete early stages of PBC allowed differentiation between responders and incomplete responders. This parallelism of the curves may indicate that UDCA influences mainly cholestasis and that other reactions are secondary. Therefore, more potent choleretic compounds or a combination of various cholestatic substances could further improve responses in incomplete responders. As stated previously, we are about to conclude such a study and the results seem to support our hypothesis.

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Endoscopic gastrin test and Helicobacter pylori infection

EDITOR.—In their recent article in Gut, Iijima and colleagues conclude that reduced acid secretion in gastric ulcer patients and gastric acid hypersecretion in duodenal ulcer patients were both normalised after H pylori eradication. We agree with the recovery of gastric secretory function in the former group of patients, who constantly bear chronic gastritis which improves greatly after disappearance of the germ, with subsequent restoration of gastric glandular tissue. However, we disagree with their conclusion regarding the latter group, because it is not supported by the experimental data obtained. It is surprising that they found an increase in acid secretion (although not significant) in duodenal ulcer patients one month after eradication. This finding is difficult to explain, because basal gastrin levels were significantly reduced compared with those before eradication in the same patients, and others have found a rapid decrease of acid outputs in relation to the decline of serum gastrin. The Japanese researchers state that this disparity may depend on the premature assessment of gastrin stimulated acid output (one month), because the same evaluation performed after seven months showed significantly decreased values compared with those before eradication. It must be pointed out, however, that there is a tremendous overlap between acid outputs measured before and after seven months of eradication, and those pertaining to H pylori negative controls. Moreover, the rate of decrease of acid secretion after seven months was only 23% in their study.

This reduction is very low and similar to the level of 16% seen after six months of eradication by Parente et al, who themselves acknowledged in their paper that this small percentage casts doubt on the unique role of H pylori in determining the acid secretion typical of duodenal ulcer. Although the data obtained by Iijima et al and Parente et al after cure of H pylori infection were significantly different from those before eradication, we believe that statistical significance does not mean physiological relevance in this case.

Apart from the previously mentioned overlapping, some patients even show an increase in acid secretion after seven months, and others have found no change in maximal acid secretion 12 months after eradication of the bacterium. It is clear that the deregulation of gastric physiology in duodenal ulcer is caused by a combination of factors and H pylori is only one of them. In addition, it should not be forgotten that 20–30% of patients with duodenal ulcer have been shown to relapse despite ascertained H pylori eradication,4 and a high acid output has been found in patients with duodenal ulcer recurrence after the disappearance of H pylori.5 These findings seem to suggest that a genetic predisposition to secrete more acid is present at least in a subset of patients with duodenal ulcer, independent of H pylori status.6 7 Therefore, overenthusiastic statements that eradication of H pylori is followed as a rule by normalisation of gastric secretion typically of duodenal ulcer is misleading and should be attenuated.

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9 Harris AW, Gummert PA, Philli PS, Jacyna MR, Misiewicz JJ, Baron JH. Recurrence of duodenal ulcer after Helicobacter pylori eradication is related to high acid output. Aliment Pharmacol Ther 1997;11:9-11.

Losartan and renal sodium handling

EDITOR.—We read with great interest the paper by Girgrah et al (Gut 2000;46:114-120). Their report suggests that the subtype sodium retention that is characteristic of preswitch cirrhosis is improved by administration of low dose losartan. This is despite the paradoxical observation of an angiotensin concentration that is significantly lower in patients compared with healthy volunteers (mean (SEM) patients 6 (2); controls 40 (10) pmol/l). Our results of angiotensin II measurements are at variance with those published by Girgrah et al and are illustrated in fig 1.‡ Our studies suggest that there is a progressive increase in angiotensin II concentrations with increasing severity of sodium retention. In fact, this increase in angiotensin II is evident before any measurable derangement in systemic haemodynamic characteristics. The values measured in healthy volunteers are also significantly higher than those reported in the literature. We are not sure if these differences in measured values are the result of different patient populations, differences in the method of collection of the sample (Girgrah et al—EDTA and heparin; Newby et al and Helmy et al—half 0.5 %, half 0.4% O-phanthrolin and 1% disodium EDTA), or different assay techniques (were the samples extracted prior to the radioimmunoassay?). The authors hypothesise that the increase in renal sodium excretion observed after administration of losartan was possibly due to its effect on intrarenal angiotensin II secretion. In this case, the effect was true when the concentration that is significantly lower in plasma angiotensin II concentrations after administration of losartan

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The text continues with additional content that is not relevant to the prompt.


Reply

EDITOR—We thank Drs Jalan and Newby for their comments on our recent study (Gut 2000;46:114–120). We understand that our findings of decreased angiotensin II levels in preascitic cirrhotic patients compared with normals are at variance with their findings of elevated levels in such patients.1 Before we comment on this, we will first address their second point that our results in healthy volunteers are higher than those previously reported.1 On reviewing the literature, we noted that our values were within the same “ballpark” as the reported reference values of 20 (7) pg/ml, whereas those from the Edinburgh group (3.2 (0.3) pg/ml) are on the lower end. Furthermore, their angiotensin II levels in cirrhotic patients with ascites (238 (30) pg/ml) are several times higher than those reported in patients with severe heart failure.1 We believe the explanation for these disparate results in normals and patients is laboratory variation, which is why each investigation needs its own reference values. Concerning the differences between our findings and those of Helmy et al of increases in angiotensin II levels in preascitic patients, the Edinburgh group not surprisingly found an increase in plasma renin activity also. They acknowledge in their publications that this is at variance with much of the literature on the subject in which several studies found suppression of the renin-angiotensin-aldosterone system in preascitic patients in the supine position,2,3 the position the Edinburgh group used in their studies.1,4 In addition, their preascitic patients had normal levels of atrial natriuretic peptide, which is also at variance with much of the literature, as summarised in the review by Bernardi and colleagues.2,4 Hence how do we explain these differences? We cannot explain them in terms of the dose and/or time of losartan. Losartan was given as a single dose of 50 mg of losartan, an angiotensin II receptor antagonist, on portal pressure in cirrhosis. Hepatology 1999;29:334–9.

Replication error phenotype in colorectal cancer

EDITOR—The results presented in the article by Curran et al (Gut 2000;46:114–20) may have been different if the authors had classified DNA microsatellite instability status as stable (MSS), low (MSI-L) or high (MSI-H), as recommended by a National Cancer Institute sponsored workshop.4 “RER+” group included both MSI-H and MSI-L cancers. The finding of bandshifts in two of eight dinucleotide markers is not specific for MSI-H cancers and will pick up a proportion of MSI-L cases.5 Two of the three RER+ cancers with a K-ras mutation (study Nos 52 and 129) showed bandshifts at only two loci, were left sided, and were positive for nuclear p53. It would be interesting to know if these cancers are similar in terms of MSI-L cancers. The finding of bandshifts at the mononucleotide markers BAT25, BAT26, or BAT40 (specific and sensitive for MSI-H) and/or show loss of expression of hMLH15 would explain the high frequency of p53 positivity, not seen by others.7 Their conclusions with respect to RER+ cancers regarding molecular profiles and prognostic significance only compounded the confusion generated by earlier studies that failed to draw the fundamental distinction between MSI-L and MSI-H.

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Q. What are angiotensin II levels in cirrhotic patients?

A. Angiotensin II levels in cirrhotic patients were within the same “ballpark” as the reported reference values of 20 (7) pg/ml, whereas those from the Edinburgh group were lower (3.2 (0.3) pg/ml). These findings are consistent with previous reports in the literature. However, we noted that our values were within the same range as those reported in healthy volunteers.

Q. How do you explain the differences between your findings and those of Helmy et al?

A. We acknowledge that there is variance in the literature on the subject. Several studies found suppression of the renin-angiotensin-aldosterone system in preascitic patients in the supine position. The Edinburgh group used the supine position in their studies. In addition, their preascitic patients had normal levels of atrial natriuretic peptide, which is also at variance with much of the literature. We cannot explain these differences in terms of the dose and/or time of losartan. Losartan was given as a single dose of 50 mg of losartan, an angiotensin II receptor antagonist, on portal pressure in cirrhosis.

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Letters, Book reviews, Notes

Correspondence to: Dr D T Croke.

Letters, Book reviews, Notes

National Cancer Institute workshop on microsatellite instability (MSI) status are not in accordance with the recommendations produced by the National Cancer Institute workshop on microsatellite instability.1 We would point out that the conclusion of our study and submission of our manuscript were contemporaneous with the publication of these recommendations. It is clear that the criteria we used may have resulted in some MSI-L cases being included in the RER+ cohort for the purpose of the analysis. Clearly, the best way to address this issue would be to reassess our RER+ cohort using a mononucleotide repeat marker, BAT-25 or BAT-26. A RER+ status using a dinucleotide repeat marker, such as BAT-25 or BAT-26, is still a matter of discussion.

Fibroepithelial polyps and adenomatous polyps fail to detect widespread instability in microsatellite sequences.1 It is clear that the conclusion of our study and submission of our manuscript were contemporaneous with the publication of these recommendations. It is clear that the criteria we used may have resulted in some MSI-L cases being included in the RER+ cohort for the purpose of the analysis. Clearly, the best way to address this issue would be to reassess our RER+ cohort using a mononucleotide repeat marker, BAT-25 or BAT-26; however, sufficient clinical material is no longer available to us.

We based our analysis on eight dinucleotide repeat markers and defined tumours as MSI-H if two or more markers (that is, 25%) exhibited allelic shifts.1 This analysis categorised 14% of tumours (22 of 159) as RER+. The NCI recommendations for analyses involving greater than five markers were that MSI-H would be defined as having allelic shifts in 30–40% of tumour markers. This would suggest that our RER+ cohort must contain a number of MSI-L tumours, but that, by the NCI criterion, the majority are likely to have been MSI-H. Therefore, while we may concede that our study included a number of MSI-L tumours in the RER+ category, we believe that this number was small (in the context of a total patient cohort of 159) and does not completely invalidate our conclusions. Furthermore, as we have pointed out in our paper, we believe that our decision to include only patients who underwent potentially curative surgery for cancers which had penetrated beyond the bowel wall but which had not breached the peritoneal surface, spread to other organs or metastasised to lymph nodes or distant sites at the time of operation (T3, N0, M0), lends significant strength to our study in avoiding potentially confounding effects of treatment stage on microsatellite instability or other parameters.

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2 Parsons R, Myeroff LL, Liu B, et al. Microsatellite instability and mutations of the transform-


BOOK REVIEWS


A booklet a little larger than the size of a two column review may seem unimportant. But this is an exception. This publication is for patients with ulcerative colitis and sources of such information should be the concern of gastroenterologists. It has been written by Andrew Robinson, whose self management programme for patients with colitis leads to fewer outpatient visits, more rapid treatment of relapse, and improved patient satisfaction (Pp 19, 31, 32), and Ann Kennedy, a research fellow in primary care. They have been assisted by a professional writer and sensibly had the guide endorsed by the Plain English Campaign.

The guide consists of two booklets in a single plastic folder. Part One includes an overview of ulcerative colitis, tests, treatment and surgery. Part Two is an individual patient record. There is much to be commended, with detailed information helpfully summarised in coloured boxes (“Things to Remember”), or treatment options discussed (“Your Choice”) and anecdotes from patients that give a personal appeal. Clinical views and opinions are, on the whole, well balanced, and I could see this guide being a valuable contribution to patient information. Faults, however, qualify this commendation. The surgical subsection on ileocolic anastomosis for ulcerative colitis is wholly inappropriate and there is confusion in terminology in the section on pouch surgery. Factual errors (such as a “2% risk” of ulcerative colitis in offspring, or “5-methylmercaptopurine”) and statements such as “immunosuppressants may make your baby very small and can lead to abnormalities” are simply misleading. Indeed the whole section on pregnancy is poor, with two anecdotes from patients advising cutting down or stopping maintenance therapy. It was surprising that there was no information for adolescents, or on osteoporosis, and little mention of the dilemmas of coexisting conditions, or the implications of differentiating ulcerative colitis from Crohn’s colitis. A brief mention of new therapies on the horizon would have suited the aim of the book, if only to highlight the importance of clinical and basic science research, which were simply ignored.

The patient record booklet is a good idea, although there is often experimentally, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo, of novel therapies based on the premise of clinical and basic science, with some experimental work in vivo. We may be making a mistake in failing to equip medical students and young doctors with a firm understanding of the “new biology” – therefore, genetics, immunology, and developmental biology. This book deals with these things and, although its subject is a small part of the totality of human biology, it is dealt with in depth by recognised leaders. Ian Sanderson and Ann Kennedy must be congratulated for bringing their research together.

The development of the Gastrointestinal Tract is also provided as a CD-ROM, but this offers little more than the facility to read it on screen. It has no search tools, nor is it possible to cut and paste sections (for those wishing to produce a review article overnight). However, the opening pages of the book’s chapters will abolish the tedium of photocopying, and will also preserve the spine of this handsome and well produced book.


To paraphrase Mark Twain, reports of the impending demise of the print media have been greatly exaggerated—a trainee can still spend a couple of hours browsing new editions in a medical bookshop and, usually during frantic preparation for higher exams while fulfilling DSM-IV criteria for anxiety disorder, part with large sums of money on illustrated texts. There also seems to have been a small explosion of abridged versions of textbooks and specialty handbooks, although some of these “handbooks” can weigh in at more than 500 pages, and entail some serious fitness training if carried around in a coat pocket.

Almost qualifying for the cruiserweight division at just over 200 pages, A Colour Handbook of Gastroenterology provides a concise, richly illustrated summary of clinical gastroenterology. Apart from oesophageal varices and ascites, hepatological conditions are not included. The book contains about 90 subjects organised into 10 colour coded anatomical sections. Each section starts with a short discussion of the relevant anatomy, physiology, as well as techniques for imaging, and functional assessment. Most major areas of gastroenterology are covered, although the level of detail is sometimes a little uneven. For example, seven pages are devoted to...
disorders of the small bowel and colon, but the less visually glamorous conditions of constipation and irritable bowel syndrome are relegated to a single page or less. The text on disease management is usually limited to a few lines on each subject, so that a trainee will still need to consult more detailed references when making treatment decisions. There is also a paucity of newer imaging techniques, including magnetic resonance imaging and endoscopic ultrasonography, two technologies that are beginning to revolutionise our approach to patients with suspected gastrointestinal disorders.

Perhaps the main attraction of this book for the visually inclined, busy trainee is that the text is structured, succinct, and richly illustrated with over 300 high quality radiographs, colour photographs, and tables. Given the increasing availability of electronic textbooks and medical images, one wonders about the future of such handbooks—although, unlike any other medical text on my computer or bookshelf, it was certainly easy to read from cover to cover. The preface states that it is directed towards junior doctors who are preparing for higher qualifications in gastroenterology and general medicine, but it will also appeal to financially solvent medical students who are keen to learn more about gastroenterology.

S P PEREIRA

NOTES

Sir Frances Avery Jones British Society of Gastroenterology Research Award 2001

Applications are invited by the Education Committee of the British Society of Gastroenterology who will recommend to Council the recipient of the 2001 Award. Applications (TWENTY COPIES) should include:

- A manuscript (2 A4 pages ONLY) describing the work conducted
- A bibliography of relevant personal publications
- An outline of the proposed content of the lecture, including title
- A written statement confirming that all or a substantial part of the work has been personally conducted in the UK or Eire.

An applicant need not be a member of the Society. The recipient will be required to deliver a 20 minute lecture at the Annual meeting of the Society in Glasgow in March 2001. Applications (TWENTY COPIES) should be made to the Endoscopy Section Secretary, British Society of Gastroenterology, 3 St Andrews Place, London NW1 4LB by 1 December 2000.

Joint Meeting of Oesophageal Section of the BSG and Association of Upper GI Surgeons

There will be a joint meeting of the Oesophageal Section of the British Society of Gastroenterology and the Association of Upper GI Surgeons exploring some important issues in oesophageal disease at the Royal College of Surgeons of England, Lincoln’s Inn Fields, London WC2 on Wednesday 1 November 2000. The meeting will take the form of four debates on:

1. The place of chemotherapy in the management of cancer of the oesophagus
2. The appropriate management of high grade dysplasia
3. Identifying the role of anti-reflux surgery in the current management of gastrooesophageal reflux disease and
4. The relevance of helicobacter pyloridis in oesophageal disease.

Further information from: WJ Owen, Hon Secretary, Oesophageal Section of the BSG, Suite 406 Emblem House, London Bridge Hospital, 27 Tooley Street, London SE1. Tel: (0)20 7403 3814; fax: (0)20 7403 3814.

Gluten Sensitivity Symposium

The Gluten Sensitivity Symposium meeting, sponsored by SHS International, will be held at the National History Museum, London, on Friday 20 October 2000. Speakers include Professor Paul Ciclitira, Dr Tony Ellis, Dr Geoff Holmes, Professor Markku Maki, Dr Mario Hadjivassiliou, Professor Lionel Fry, Dr Gerd Michaelson and Professor Tom MacDonald. Further information: Debbie Jones at SHS International. Tel: +44 (0)151 228 1992; email: djones@shsint.co.uk.

Food Allergy and the Gut

The Allergy Research Foundation presents Food Allergy and the Gut, to be held at the Royal Society of Medicine, London on 29 December 2000. Further information: Philip N Goddard, Executive Secretary, The Allergy Research Foundation, PO Box 18, Aylesbury, Bucks HP22 4XJ, UK. Tel & fax: +44 (0)1296 655818.

13th European Intensive Course of Digestive Endoscopy

This course will be held in Strasbourg, France on 18 and 19 December 2000. Further information from Professor G Gay, Service de Médecine Interne J, Hôpital de Brabois, Allée du Morvan, 54511 Vandœuvre-lès-Nancy Cedex, France. Tel & fax: +33 (0)3 81 15 35 49.

Joint Meeting of the American Pancreatic Association and the International Association of Pancreatologists

This meeting will be held in Chicago, Illinois, USA on 1–5 November 2000. Symposia, posters, scientific sessions, “Pancreatology at the Millennium”. Further information: Peter A Banks, Brigham and Women’s Hospital, 75 Francis Street, Boston, MA 02115, USA. Tel: +1 617 732 6747; fax: +1 617 566 0338.

36th Annual Meeting of the European Association for the Study of the Liver (EASL)

This meeting will be held in Prague, Czech Republic on 18–22 April 2001. Abstract deadline: 27 November 2000. EASL will offer 10 travel bursaries to selected young investigators and 30 to Eastern European, pending on submission of an abstract. In addition, first authors under 35 years of age, and in training, who submit abstracts will have free registration. Further information: EASL Liaison Bureau, c/o Kenes International, 17 rue du Cendrier, PO Box 1726, CH-1211 Geneva, Switzerland. Tel: +41 22 908 0488; fax: +41 22 732 2850; email: info@easl.ch; website: www.easl.com.

15th International Workshop on Therapeutic Endoscopy

This workshop will be held in Hong Kong on 5–7 December 2000. Further information: Miss Claudia Mak, Endoscopy Centre, Prince of Wales Hospital, Shatin, N.T., Hong Kong. Tel: +852 2632 2233; fax: +852 2635 0075; email: info@hksde.org.