of IKK. These findings are not supported by biochemical data and are certainly not very impressive. This leaves us with more questions than answers.

What is the relationship between trypsinogen and NFκB activation?

Trypsinogen activation is considered the key event in the initiation of acute pancreatitis. Whether NFκB activation participates in the activation of trypsin is unclear. Interestingly, NFκB is induced with a kinetic similar to activation of trypsin.[10–12] Is there a cell type specific role for NFκB activation in the course of acute pancreatitis? Inhibition of NFκB in acinar cells might be harmful and extend tissue injury whereas blocking NFκB activity in inflammatory cells might be beneficial and prevent the uncontrolled systemic response. What are the NFκB dependent "protective genes"? It could even be possible that NFκB activation contributes to the pancreatic defence programme and triggers the synthesis of proinflammatory cytokines within the acinar cells simultaneously. Is slight inhibition of NFκB beneficial? Acinar cells might need a small dose of NFκB activation to be able to turn on a defence program. The use of genetically defined knockout mice will help to answer these questions. The possibility to inactivating genes in a tissue and time specific fashion will allow analysis of the consequence of inhibition of different components of NFκB signalling in different cellular compartments.

In summary the study by Aleksic *et al* clearly shows that activation of NFκB in acinar cells is not deleterious to the pancreas per se. Induced NFκB activity for months resulted in infiltrates composed of B-lymphocytes and macrophages without destroying the organ. The key question for the future is whether inhibition of NFκB activation will be of some benefit in the course of acute pancreatitis. What cell type has to be targeted? What time course of inhibition is best? And finally, will this approach work in our patients suffering from acute pancreatitis?

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REFERENCES

1 **Grady T**, Liang P, Ernst SA, *et al.* Chemokine gene expression in rat pancreatic acinar cells is an early event associated with acute pancreatitis. *Gastroenterology* 1997;**113**:1966–75.
2 **Gukovsky I**, Gukovskaya AS, Blinman TA, *et al.* Early NF-kappaB activation is associated with hormone-induced pancreatitis. *Am J Physiol* 1998;**275**:G1402–14.
3 **Steinle AU**, Weidenbach H, Wagner M, *et al.* NF-kappaB/Rel activation in cerulein pancreatitis. *Gastroenterology* 1999;**116**:420–30.
4 **Gao Y**, Lecker S, Post MJ, *et al.* Inhibition of ubiquitin-proteasome pathway-mediated IκBα degradation by a naturally occurring antibacterial peptide. *J Clin Invest* 2000;**106**:439–48.
5 **Vaquero E**, Gukovsky I, Zaninovic V, *et al.* Localized pancreatic NF-kappaB activation and inflammatory response in taurocholate-induced pancreatitis. *Am J Physiol Gastrointest Liver Physiol* 2001;**280**:G1197–208.
6 **Altavilla D**, Famulari C, Passaniti M, *et al.* Attenuated cerulein-induced pancreatitis in nuclear factor-kappaB-deficient mice. *Lab Invest* 2003;**83**:1723–32.
7 **Aleksic T**, Baumann B, Wagner M, *et al.* Cellular immune reaction in the pancreas is induced by constitutively active IKK2. *Gut* 2007;**56**:227–36.
8 **Mercuro F**, Zhu H, Murray BW, *et al.* IKK-1 and IKK-2: cytokine-activated IkappaB kinases essential for NF-kappaB activation. *Science* 1997;**278**:860–6.
9 **Chen X**, Ji B, Han B, *et al.* NF-kappaB activation in pancreas induces pancreatic and systemic inflammatory response. *Gastroenterology* 2002;**122**:448–57.
10 **Tando Y**, Aguel H, Schneider G, *et al.* Induction of IkappaB-kinase by cholecystokinin is mediated by trypsinogen activation in rat pancreatic lobules. *Digestion* 2002;**66**:237–45.
11 **Han B**, Ji B, Logsdon CD. CCK independently activates intracellular trypsinogen and NF-kappaB in rat pancreatic acinar cells. *Am J Physiol Cell Physiol* 2001;**180**:C465–72.
12 **Hietaranta AJ**, Saluja AK, Bhagat L, *et al.* Relationship between NF-kappaB and trypsinogen activation in rat pancreas after supramaximal caerulein stimulation. *Biochem Biophys Res Commun* 2001;**280**:388–95.

Gastrointestinal disease

The burden of gastrointestinal disease: implications for the provision of care in the UK

M D Hellier, J G Williams

Gastroenterology involves many disciplines, including physicians, surgeons, radiologists, pathologists, nurses, dieticians, clinical scientists and general practitioners, who need to work together closely to deliver the best care. Gastrointestinal and liver disorders are common, but the specialty is poorly understood and has attracted little attention from a policy perspective. Thus, it has no National Service Framework, was not included in the "Quality and Outcome Framework" for general practice and does not attract significant charitable research funding, in comparison with many other disciplines. Yet the burden of disease relating to gastroenterology and hepatology is very considerable. Gastrointestinal disease is the third most common cause of death, and cancer of the gastrointestinal tract is the leading cause of cancer death. Including day case investigations, gastrointestinal disorders account for as many hospital admissions as respiratory illnesses, and both are second only to circulatory disorders. In the past few decades there have been increases in the incidence of most gastrointestinal diseases that have major implications for future healthcare needs. These include hepatitis C, acute and chronic pancreatitis, alcoholic liver disease, gallstone disease, upper gastrointestinal haemorrhage, diverticular disease, Barrett's oesophagus and oesophageal and colorectal cancers. The impairment of quality of life is substantial in terms of symptoms, activities of daily living and employment. Conditions with a particularly high level of disruption to the lives of sufferers include gastro-oesophageal reflux disease, dyspepsia, irritable bowel syndrome, anorectal disorders, gastrointestinal cancers and chronic liver disease.

The evidence underpinning these conclusions can be found in a document commissioned by the British Society of Gastroenterology (BSG) and published this month as a supplement to *Gut*.[1] It is accompanied by a strategic view of the future care of patients with gastrointestinal disorders from the BSG.[2] These two documents are intended to fill the void created by the absence of a National Service Framework for Gastroenterology and Hepatology. This omission seriously disadvantages the specialty and patients who have gastrointestinal disorders at a time when there are unprecedented pressures to improve healthcare services. There is an urgent need for such improve-

ments to be balanced and appropriate, and there are concerns that the impact of recent Government directives such as the Improved Outcome Guidance for Upper Gastrointestinal Cancers, the two-week waiting time ruling and other targets set within the National Health Service Cancer Plan will disadvantage some patients while improving services for others.[3 4]

The present state of turmoil and uncertainty within the National Health Service leaves the future structure of service delivery uncertain, but this needs to be informed by hard evidence and take into account the views of those who deliver and receive the service. These documents pull together this evidence from the literature, patients and professionals. They make no attempt to evaluate government policy. They are intended to inform the development of service delivery, the over-riding principle of which must be patients' ready access to optimal care. Planning must start with the patient and be based on his or her requirements. Delivery of care should be close to the patient wherever possible. The proposals do not attempt to deal with all gastrointestinal conditions, nor would it be appropriate to do so. The aim is to present a broad approach to service delivery.

Much gastroenterological practice relates to chronic disease and good chronic disease management is fundamental to much of our practice in gastroenterology. Inflammatory bowel disease is a paradigm for chronic disease management and the principles discussed in the document can be applied to most areas of gastroenterological practice. There should be a smooth transition of care from assisted self-management in the community (assisted being used advisedly) through primary care support to local hospital specialist support and when necessary through established links for tertiary referral.

Devolving more care to primary care level, developing general practitioners with specialist interests and close integration of primary and secondary care are all essential for effective chronic disease management. It also requires training of all levels of staff and agreed patient pathways/protocols of care; clinical governance and audit of practice are essential features. Effective chronic disease management therefore requires appropriate resourcing to fund education, training, workforce requirements and full information systems. Specialist gastrointestinal nurses play an increasingly important role, especially at the primary/secondary care interface, through education, telephone access, monitoring and specialist outpatient support. They should be considered essential members of the gastrointestinal team.

A major part of gastroenterological practice that has not received the attention and support that it should is irritable bowel syndrome. The burden on society is considerable: 10–22% of the UK population are affected and the condition constitutes 20–50% of the outpatient gastrointestinal workload. Firm recommendations are made regarding requiring better training, more support for gastrointestinal physiology and the need for an integrated service provision at the level of primary care, with emphasis on a multidisciplinary team approach.

Cancer services which have benefited from Government policy and are now well established nationally are detailed. The strategy proposals for delivering hepatobiliary services very much follow the National Plan for Liver Services.[5] Strong support is given to the Royal College of Physician evidence-based blueprint for the management of alcohol related disease.[6] This escalating burden on society, its impact on inpatient workload, particularly at the secondary care level, and its high morbidity and mortality is very much in the public eye at present. Yet without funding to back these recommendations, little progress will be made. There needs to be a coordinated team approach in all acute units closely integrated with the community services. An alcohol liaison nurse in the acute unit covering the acute/community interface is a key member of the team.

Thus, an essential feature for the success of service delivery is an integrated team approach requiring close cooperation between surgeons, physicians, pathologists, radiologists, dietitians, nutritionists, specialist gastrointestinal nurses, pyschologists and geneticists. Multidisciplinary team meetings for both cancer and noncancer diseases are critical for the effective running of the service.

The future development of the service is dependent upon good research and the threats and challenges for academic gastroenterologists and research are highlighted. Recommendations to safeguard these are made. The UK Clinical Research Collaboration will offer unprecedented opportunities for those wishing to pursue a career in academic gastroenterology, and it is vital that the specialty takes full advantage. There are no topic-specific networks for research into gastrointestinal disorders but generic support and career opportunities are there.

Although there is a place for centralisation of certain services such as advanced complex liver disease and liver transplantation, there are real dangers from a shift towards wider centralisation. This would de-stabilise the balance of services at the primary/secondary care interface and impoverish it. It would undermine the ability to provide services locally and would have a serious secondary effect on training. It is crucial to retain essential services at a local level if delivery of gastrointestinal services is to serve the best interests of patients. Providing a gastroenterological service requires a comprehensive gastrointestinal unit with expertise relating to all the areas indicated above.

We believe these documents should be essential tools for all those involved in the commissioning of gastrointestinal services at whatever level: primary, secondary or tertiary care, or at government level.

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REFERENCES

1 **Williams JG**, *et al*. Gastroenterology Services in the UK. The burden of disease, and the organisation and delivery of services for gastrointestinal and liver disorders: a review of the evidence, March 2006.Centre for Health Improvement, Research and Evaluation, University of Wales Swansea.Gut Online, 2006.
2 **Care of patients with gastrointestinal disorders in the United Kingdom**. A strategy for the future. British Society of Gastroenterology. Gut Online, 2006.
3 **Achieving the two week standard**. DoH UK 2002.
4 **Guidance on commissioning cancer services. Improving outcome in upper gastrointestinal cancer. The Manual**. NHS Executive UK 2001.
5 **Specialised services for hepatology**. hepato-pancreato-biliary (HPB) surgery: British Association for Study of the Liver (BASL), British Society of Gastroenterology (BSG) Association of Upper GastroIntestinal Surgeons (AUGIS) UK Liver Surgeons Group and Pancreatic Society UK 2004.
6 *Royal College of Physicians of London. Alcohol: can the NHS afford it? Recommendations from a coherent alcohol strategy for hospitals.* London: Royal College of Physicians of London, 2001.