vides freely many willingly take; and the NHS has asked doctors in certain infertility centres to provide this service. Practical difficulties, however, have so far severely restricted its provision. These difficulties are in the main administrative. The secrecy that is absolutely essential (more so perhaps than in any other form of medical practice) is difficult to maintain. The woman who is being inseminated has to be able to lie up quietly for about half an hour after the insemination, and in centres with no day unit for the treatment of gynaecological cases the provision of a suitable couch or a bed brings its own problems, as does the finding of a nurse willing to help in such work on a permanent basis—it is no use asking temporary nurses to come into the clinic for this purpose. A semen bank is almost essential for inseminating large numbers of women, but again there are practical difficulties. The liquid nitrogen has to be delivered on the right day and the right person has to be in the unit to receive it and to ensure that the bank is properly sealed and that the temperature is kept at the correct very low level. Outside the NHS several doctors are providing such a service at relatively low fees, either privately or on a charitable or semi-charitable basis.

Donors must be free of communicable, inherited, and inheritable diseases, and each donor should match the husband's physical characteristics. When he does the children grow in the family to resemble the husband almost uncannily. The source of donors is somewhat controversial. Most are medical students or college graduates who expect to be paid, even if only a small sum; but it may be argued that this raises a precedent and that blood donors might not be willing to donate freely as they do at present. Even when medical students are willing to give their semen for nothing some deans of medical schools point out that they have given undertakings not to ask students voluntarily to take part in any procedures, be they experimental or therapeutic, for the benefit of patients. Students come to medical school to be taught, not to be used. Probably the best source is the husbands of women successfully treated in the infertility clinic; there is the added advantage that they are of proved fertility and their offspring can be seen to be free of obvious defect.

Different authorities have reported oddly different success results. Millet et al.1 put the chance of success at about one in four. Donald Goss2 reported 51 conceptions in 41 patients, resulting in 43 live births out of 55 couples where donor insemination was accepted; the mean number of inseminations was 4.2.

In December 1972 the CIBA Foundation held a symposium on the legal, ethical, and moral aspects of donor artificial insemination. Theologians, lawyers, gynaecologists, and philosophers from five different countries participated. The conclusion was that “The law has got to consider AID not in a prohibitory way and perhaps in a regulatory way so far as is required to make the technique acceptable to society.” At present there is nothing in the law to make AID illegal, and the consensus of opinion at the symposium was that it was ethically and morally justified in suitable cases. All the same it is not possible to write out a prescription for artificial insemination on a prescription pad. It requires responsible assessment, excellent and expensive organisation, and above all tact, confidentiality, and absolute secrecy.

VIP and watery diarrhoea

The watery diarrhoea syndrome or pancreatic cholera is a complication of functioning non-beta-cell tumours of the endocrine pancreas. First described by Verner and Morrison in 1958,1 so far fewer than 100 cases have been recorded in published reports. The patients’ main complaint is of chronic, profuse, watery diarrhoea, which leads to dehydration and hypokalaemia. This is accompanied by hypochlorhydria, hyperglycaemia, and attacks of flushing. For some time it has been thought that this syndrome was due to the excess production of a peptide hormone, similar to the excess secretion of gastrin by pancreatic tumours causing hyperchlorhydria in the Zollinger-Ellison syndrome. Yet none of the possible hormones—secretin, gastrin, glucagon, or gastric inhibitory peptide—had the right spectrum of properties to be the mediator of the syndrome.

In 1970 vasoactive intestinal peptide (VIP) was isolated from pig small intestine.2 Pharmacological studies have shown that VIP has many more properties than its name (given as the result of it being assayed by its vasodilatory action) might imply. VIP strongly stimulates the intestinal secretion of water and electrolytes,3 inhibits gastric secretion,4 promotes glycogenesis and hyperglycaemia,3 and causes hypercalcaemia.6 It also has a secretin-like action on the pancreas, stimulating production of pancreatic juice.

Evidence that VIP is the mediator of the watery diarrhoea syndrome was produced by Bloom, Polak, and Pearse2 in 1973, when they used a specific radioimmunoassay to show raised plasma levels of VIP in four patients and established by immunofluorescent antisera and bioassay that pancreatic tumours in these patients contained VIP.

More recently, Said and Falcona4 have described their investigations of plasma VIP levels in a series of 30 patients with the watery diarrhoea syndrome. In four no tumour was found; 13 had a pancreatic islet cell adenoma, four islet cell hyperplasia, and one each a phaeochromocytoma and a ganglioneuroblastoma. The finding of six patients with bronchial carcinoma with this syndrome was of particular interest. The radioimmunoassay used was generally unable to detect VIP in the plasma of normal controls, though in 26 of the 28 patients in whom it was measured the plasma VIP levels were raised. In each of the 13 tumours that were assayed the VIP levels were high, the highest being in the phaeochromocytoma and the ganglioneuroblastoma. There was no relation between the VIP levels within the tumour and those in the plasma. A fall in plasma VIP levels was found in five patients in whom the diarrhoea ceased after medical or surgical treatment. Unexplained high plasma VIP levels were found in two out of 50 controls; Said and Falcona suggest that isolated raised plasma VIP levels should be interpreted with caution. Their quest for cases from centres in Europe and America has led to the discovery that VIP can be produced by various tumour types, which as the authors suggest—may be guided by their common ancestry in the neural crest.

Probably VIP estimations may be of increasing value in diagnosis; indeed, this radioimmunoassay may lead to an earlier discovery of pancreatic tumours, for in the past on average it was three years before the diagnosis was finally established in patients with this syndrome.8 It is, however, unlikely that its application to other aspects of gastrointestinal disease will share the clarity of the association shown and confirmed in the watery diarrhoea syndrome. But often

in the study of endocrine disorders florid excess has often been the starting point from which subtle interrelationships of mediator and target have been deciphered.

Fractures of the shaft of tibia

Fractures of the shaft of the tibia are caused principally by road accidents, accidents at work, and accidents in sport. Yet in spite of their frequency the treatment of these fractures remains controversial and the results variable.

The surgeon treating a fracture of the tibial shaft is faced with three problems: the slow rate of union, the high incidence of delayed and non-union compared with other fractures, and the difficulty of controlling radiological and anatomical deformity. The factors influencing the rate of union are no different from those applying to other fractures, but the tibia is unusually prone to compound injury. Soft tissue damage with skin loss, difficulties of skin closure at operation, and a risk of osteomyelitis are all factors adversely affecting the chances of primary union.

All surgeons agree that compound wounds should be debrided and the skin over the fracture closed without tension where possible. Tetanus toxoid and a course of suitable antibiotics should be given. Most surgeons agree that delayed and non union should be treated surgically; but timing of such operative intervention is less certain, as are the indications for the use of internal fixation or bone grafts or both.

Even in fresh fractures the differences of opinion are reflected in the diversity of the methods of treatment. Tibial shaft fractures can be treated conservatively or operatively. Even this dichotomy is not the only problem, for members of each school apply the doctrines in various ways. The conservative method of treatment includes reduction (and traction if necessary) and an above-knee plaster-of-Paris with or without early weight bearing. Some surgeons try to preserve the mobility of the knee, particularly in low tibial fractures, by applying a suitably shortened plaster. Others support the Hoffman method of rigid external fixation using pins inserted through the bone proximal and distal to the fracture. This method is specially useful in controlling fractures in legs where there has been skin loss or damage, for it allows access to the area for dressing.

Surgical methods in current use include open and closed nailing, plating with or without compression or bone grafting, amputation, and encirclage wiring. The last method is mentioned only to be condemned, for though it produces radiological accuracy the wires act like a tourniquet on the bone, interfering with the local blood supply and delaying or preventing union. The Swiss AO group are strong advocates of internal fixation, and have done much to simplify and improve the technique. Paradoxically, this advance has caused problems—

for the technical simplicity of internal fixation may tempt the untrained surgeon into rash operative adventures.

As Nicoll has stressed, the aims of internal fixation should be a reduction in the incidence of functionally significant deformity and joint stiffness, and a reduction in the risks of delayed and non-union; these advantages must be clear enough to outweigh the risks of surgery. Charnley’s warning should be heeded: failures of operative and conservative treatment are not equally salvageable by secondary procedures. Adding his weight to the conservative school, Van der Linden et al have developed an earlier report about skiing fractures of the tibial shaft. He and his co-workers compared fractures from skiing injuries with those from road accidents, from other sports, from accidents at work, and those in a miscellaneous group of all other cases. There were 393 skiing fractures and 207 fractures from other causes; 85% of the total were treated conservatively by reduction and a long leg plaster. Surgery was undertaken only when conservative treatment failed or when it was thought that it would fail.

Van der Linden et al found that fractures due to skiing accidents healed faster than in any other group and that the patient could be mobilised quicker and returned to work sooner. This was true of patients of any age and of fractures in any part of the tibial shaft, though Nicoll they found that fractures in the distal third of the tibia healed marginally better than fractures in the other two-thirds. Most skiing fractures occur in the distal third of the tibia, but Van der Linden does not believe this to be the reason for their improved prognosis. He argues that skiing injuries tend to produce low energy fractures; there is rarely any direct violence to the skin or soft tissues; and that compound fractures are rare. The fragments are only a little displaced, and finally the people in whom these fractures occur tend to be in better health than the population at large.

Olerud and Karlstrom have obtained good results from compression osteosynthesis in longitudinal fractures caused by direct violence of low energy, but this may be no more than confirmation that such fractures do well with any treatment, conservative or operative. Thus a surgeon operating on a tibial fracture of this type need concern himself only with avoidance of complications. Furthermore, the argument that internal fixation allows early mobilisation does not apply to tibial fractures: for, unlike patients with fractures of the femoral shaft, they can be mobilised early in plaster with crutches.

In the public interest

The profession must “keep its cool.” Nothing will encourage the Government and its supporters more in the burgeoning dispute over the future of independent medical practice than for doctors to sound off with emotional, unreasoned statements. The Government’s intentions are not a burning political issue for a public whose most immediate worry is inflation. So the profession will have to be skilful, constructive, and calm if it is to convince people that Mrs Castle’s con-