Pulmonary Embolism and Pregnancy

Sir,—Your recent leading article (22 January, p. 183, and 7 May, p. 1129) have drawn attention to the importance of pulmonary embolism and the difficulties associated with the early diagnosis of this complication. It is so essential if successful treatment. Breckenridge and Ratnoff have estimated that it is not uncommon for 3.8 deaths per million women between 15 and 45 years of age, and Dr. H. A. Fleming and Dr. Sheila M. Bailey (28 May, p. 1337) emphasized the close association with pregnancy in this age group. Drs. Fleming and Bailey also rightly stressed the importance of faintness, syncope, and tiredness as leading symptoms, as well as a ready awareness of the disorder and a high index of suspicion if the diagnosis was to be made early.

The worry physician must guard against allowing the relative rarity of massive pulmonary embolism to influence his diagnostic facilities in what is often a complex clinical picture. During the last 38 years (1928 to 1965) there have been 2,517 pregnancies in women with heart disease in the Simpson Memorial Maternity Pavilion of the Royal Infirmary, Edinburgh. The first-year mortality rate in these patients has fallen from 7% to 0.2% during these years, and pulmonary embolism was responsible for only one of the 59 maternal deaths in these complicated pregnancies.

This death occurred in a 34-year-old woman with advanced rheumatic mitral stenosis and incompetence, associated with cardiac enlargement, atrial fibrillation, and congestive heart failure. She had incurred several minor treatments in the antenatal wards prior to delivery. Acute breathlessness during labour was wrongly diagnosed as pulmonary oedema, but responded to symptomatic treatment. Her puerperium was complicated by extreme fatigue and further episodes of dyspnoea to her death from further pulmonary embolism four weeks after delivery.

This case demonstrates the frequent time-lag between the first episode and subsequent death—a point made in your leader of 22 January, and emphasizes how a diagnosis which in retrospect is obvious may be missed because of an insufficiently high index of suspicion, even when a well-recognized predisposing cause is present.

The recognition of the risk is the most important step in early diagnosis. The Ministry of Health Reports on confidential inquiries into maternal deaths in England and Wales, which were not quoted in your leaders or by Drs. Fleming and Bailey, provide sobering data on the relative risk of pulmonary embolism in pregnancy. The maternal mortality from pulmonary embolism during the 12 years covered by these reports has increased from 13% (138 deaths) to 19% (129 deaths), whereas the total maternal deaths fell from 22% (246 deaths) to 15% (104 deaths) during these years of decreasing overall maternal mortality (see Table).

These figures raise the important question of how many of these deaths from pulmonary embolism could have been avoided by earlier diagnosis and treatment. The 1952-4 Ministry Report contains the comment, "The fact that anticoagulants were not prescribed has not been regarded as an avoidable factor in the assessment of these cases, since expert opinion is still divided on this question."

This statement contrasts with the undoubted effectiveness of anticoagulants in the treatment of pulmonary embolism, which has been demonstrated by Bannister and others, and by many others with experience in this field. It is usually significant that anticoagulants have been given to only very few of the cases included in the confidential reports, that this small number was no greater in 1951-3 than in 1954-6, and that the total number of deaths from pulmonary embolism have not decreased significantly during these years.

The Ministry of Health has now instituted a more detailed clinical inquiry whenever maternal death is ascribed to pulmonary embolism. When the confidential report for 1964-6 are published, it is likely that they will show that many of the deaths from pulmonary embolism could have been avoided. This consolidation of experience can be expected to indicate more clearly how maternal deaths from pulmonary embolism may be reduced in the future. I am, etc.,

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Age of Majority

Sir,—Your leading article on the age of majority (21 May, p. 1250) raises the question of the interpretation of averages. You state: "But children are maturing sooner. The median age of menarche is now at least 18 months earlier than it was in 1890."

In comparing mean or median values two types of situation have to be taken into account. In one the comparison is between samples whose internal composition is homogeneous. An example might be a study of the average height of a sample of healthy men and a sample of healthy women. In the other the samples are not homogeneous; one or both contains a deviant or pathological subgroup which raises or lowers the mean value of the whole group. This is seen when, say, the average height of a contemporary sample of healthy men is compared with that of an earlier sample containing a number of individuals affected by childhood rickets. In the first case it is true to say that men are taller than women. But in the second case it is misleading to say that men are getting taller when, in fact, only some men, those vulnerable to rickets, are taller because this disease has been eliminated.

Modern girls appear to constitute a homogeneous population in regard to the age of onset of menstruation. The age range is from 9 to 16 or 17 years, the mean is about 13 years, and the distribution is almost symmetrical. Nineteenth-century girls show a different distribution. The range is from 9 to 20 or over, and the distribution is asymmetrical. It is possible, therefore, that 19th-century samples, unlike modern samples, contain a subgroup of girls with pathological late menarche. The asymmetrical curve may be the resultant of two overlapping symmetrical distributions—the one representing healthy girls and similar to that found