petroleum ether failed to yield any active products. Extraction of the dry gorse with organic solvents is at present being investigated.

Discussion

This preliminary investigation indicates that *Ulex gallii* contains at least one active principle with pharmacological activity, chiefly on the uterus, in several species, thus affording some rational basis for its empirical use in farmyard obstetrics. The definite effects of extracts upon isolated human uterus suggest a possible extension to human obstetrics, but further work on chemical fractionation and purification is desirable before clinical tests are made, because there are some indications that the extracts thus far obtained may contain more than one pharmacologically active substance. From the common gorse, *Ulex europaeus*, Clemo and Raper (1935) isolated anagryne and another crystalline base, but no pharmacological tests appear to have been made on them. There is, of course, no present indication that the active substance is an alkaloid, but its extraction with ether from alkaline aqueous solution suggests that it is a base, the acidity of the extract being due to a weak organic acid present as an impurity.

In its action on isolated guinea-pig uterus and its toxic effects in mice gorse extract behaves like the raspberry-leaf extract studied by Burn and Withell (1941), but the two extracts seem to be quite dissimilar in their actions on cat uterus *in situ*, isolated uterus of dog and rabbit, and isolated intestine. Burn and Withell reported that the dominant action of the raspberry-leaf extract was relaxation of uterine muscle, whereas our substance is chiefly oxytocic; unfortunately they made no tests on the human uterus. Nevertheless, in view of the effects of oestrus and gestation upon the action of gorse extract the possibility of an active principle common to the two plant species cannot be definitely excluded.

The mode of action of the extract remains to be elucidated. Atropine does not affect the reactivity of either guinea-pig or pregnant human uterus, and the response of human uterus to adrenaline is not influenced by the extract. The relaxation effect on parturient guinea-pig and non-pregnant human uteri invalidates comparisons with pituitary extract. However, to gain some idea of the oxytocic activity of gorse extract comparative tests were carried out on both guinea-pig and human uteri; they indicated that the activity contained in 1 ml. of S was roughly equal to 0.3 unit of pituitary extract. The increased sensitivity of uteri from guinea-pigs in oestrus and the altered reactivity of uteri from parturient guinea-pigs and from women near full term are of special interest; they suggest that the effects of administration of gorse extract may be largely determined by the balance of gonadotrophic hormones, thus widening the field of possible clinical application. The advantages of a common plant as the source of an oxytocic drug are obvious, provided a satisfactory method of extraction becomes available.

Summary

Extracts of gorse (*Ulex gallii*) have a specific pharmacological action on uterine muscle. An active principle has not yet been isolated, but relatively pure extracts have been obtained.

The dominant action is one of uterine contraction, demonstrable on the isolated uteri of several species, including pregnant women near full term. With uteri from non-pregnant women initial contraction is followed by abolition of tone and usually definite relaxation. A similar reversal of effect is shown by the uteri of parturient guinea-pigs. In intact virgin cats intravenous administration results in uterine contraction accompanied by a sustained rise of blood pressure.

Uterine reactivity to gorse extract appears to be conditioned by the balance of gonadotrophic hormones, being greatly increased by oestrogen sensitization.

It is a pleasure to record our indebtedness to Mr. L. B. Patrick, by whose courtesy all the human uteri were obtained. Our thanks are also due to Mrs. Wilson Smith for technical assistance and to B. Ibbotson, Esq., of Ashopton, for his help in the collection and preliminary treatment of the gorse. The expenses of the work were defrayed by grants from the Medical Research Council.

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AN ANALYSIS OF ACUTE RESPIRATORY CONDITIONS IN AFRICAN SOLDIERS

BY

W. W. MacNAUGHT, M.C., M.B., Ch.B.

Lieut.-Col., R.A.M.C.; Officer in Charge, Medical Division

AND

R. M. MURRAY-LYON, M.D., F.R.C.P.Ed.

Major, R.A.M.C.; Medical Specialist

Before proceeding to the Tropics medical officers almost invariably are sent to a course on tropical medicine, and are taught at length the various tropical diseases which they are likely to encounter; but no stress at all is laid on the incidence of the common respiratory affections nor on the susceptibility of the African to these. It therefore comes as a surprise to them to find that almost a third of their acute medical admissions comprise conditions similar to those seen at home. The object of this paper is to emphasize the importance of these conditions and to demonstrate the response to treatment as compared with that of Europeans. It is based on the occurrence of respiratory diseases in Africans treated at a West African general hospital over a nine-months period from June 1, 1942, when the hospital was opened. This period covers the changing climatic conditions, including the maximum and minimum temperatures and humidities.

The total number of admissions to the African Medical Division of the hospital during the period under review, excluding dermatological cases, was 1,250, and of these the high figure of 375 (30%) were respiratory infections, including the upper respiratory conditions—e.g., coryza, sinusitis, and tracheitis. Of all these respiratory infections one only was an example of tropical disease. This patient was a soldier admitted with profuse haemoptysis, and was found to be suffering from paragonimiasis, which responded rapidly to emetine therapy. The remaining non-tropical cases were divided as follows:

I. Acute lobar pneumonia	..	..	..	76
II. Bronchopneumonia	..	..	..	52
III. Acute pleurisy	..	..	..	12
IV. Bronchitis	..	..	..	159
V. Pulmonary tuberculosis	..	..	..	7
VI. Lung abscess	..	..	..	1
VII. Minor upper respiratory infections	..	..	..	67

Acute Lobar Pneumonia

The physical signs in these cases show no difference from the classical signs seen in a European, apart from a higher incidence of upper-lobe consolidation. The African patient in many instances would report sick at an M.I. room or the reception tent of the hospital, and on examination be found to have complete consolidation of one or more lobes of the lungs. Although this is occasionally met with at home it is much more common among African patients. The commonest complaint when questioned is pain in the chest, even in the absence of an audible friction rub. Little importance can be attached to an increased respiration rate, as this is common to all febrile conditions in Africans and they rarely complain of cough.

Treatment was by oral administration of sulphapyridine in full doses, and in very severe cases the intravenous route was employed for the first one or two doses. The response to this was more dramatic than in the European; for it was a common experience to find the patient on the danger list out of his bed whenever his temperature dropped to normal, although all the signs of consolidation were still present, and in no case were any ill effects of this seen. In spite of the apparent rapid recovery of these patients, radiological examination proved that resolution was no quicker than in the European, in whom the disease appears to run a slower course. It was found that the mean period of stay in hospital in these cases of lobar pneumonia was 21.8 days.

In this series of 76 cases there were only two deaths; one of these occurred within a few hours of admission, and at necropsy the case was found to have been complicated by

pneumococcal meningitis. The other patient, who was admitted in a desperately ill condition, died after four days, showing no response to sulphapyridine. Post-mortem examination revealed red hepatization of one lung and extensive fibrosis of the other, with dense, almost cartilaginous, pleural adhesions. Only two cases showed any complications. One developed a sterile effusion which absorbed satisfactorily, and was only 35 days in hospital; the other developed a lung abscess which finally healed by fibrosis after many weeks.

As the hospital was situated in a hyperendemic M.T. malarial area all patients had routine blood films examined for malaria parasites. Parasites were found in only two cases, which were treated with quinine in addition to sulphapyridine.

Bronchopneumonia

The 52 cases in this group were acutely ill on admission and showed signs of generalized bronchitis with areas of patchy consolidation in both lungs. A productive cough was a prominent feature. They were treated by the oral administration of sulphapyridine, which was followed by a drop in temperature less dramatic than that in lobar pneumonia, but their recovery was rapid and complete. Only one case showed any complication, and that was an interlobar effusion which absorbed completely without interference.

There was no single death in this group, whose mean stay in hospital was 20.5 days.

Pleurisy

In every one of the 12 cases the symptoms were fever and pain in the chest, and a dry friction rub was found on physical examination. In no instance did an effusion develop. The treatment consisted of sedative cough medicine and heat in the form of kaolin poultices. The majority of these patients were examined radiologically and showed no evidence of any tuberculous focus.

The mean stay in hospital was 17.2 days, and none had been readmitted for a chest complaint over a follow-up period of from 2 to 6 months.

Pulmonary Tuberculosis

The 7 cases of pulmonary tuberculosis were confirmed by radiographs and sputum examination. With one exception they all had extensive lesions of the exudative type, with little evidence of resistance. The one exceptional case had an acute flare-up of a chronic fibroid phthisis, which settled down again with rest in hospital. One of the more active cases was admitted with a massive pleural effusion, which partly absorbed and recurred on three occasions. Contrary to tradition and our expectations, the incidence of pulmonary tuberculosis is low, and when seen was of the acute adult type, and no case of Ghon's focus or other evidence of the primary infection of childhood was seen.

All these cases were medically "boarded" and invalided from the Service.

Lung Abscess

One soldier was admitted in a very toxic state, having just returned from a month's leave in a bush village up-country. On examination he was found to be emaciated, with a swinging temperature and copious foul sputum. Radiographs showed two cavities with fluid levels in the right lung. He did not respond to treatment, and died ten days after admission. At necropsy a large abscess cavity was found in the right upper lobe, extending down to involve the middle lobe, and this had burst into the pleural cavity just before death. The left lung showed scattered areas of bronchopneumonia.

Bronchitis

This was the largest group in the series, and consisted of 159 cases. Five of these cases were acute exacerbations of chronic bronchitis, and the men were invalided from the Service; of these five, three had a superadded asthmatic condition. The remaining 154 patients had acute infections, one having an associated asthmatic element not severe enough for invaliding. They all responded readily to expectorants and inhalations, and required only a few days in bed. In four instances malaria parasites were found in routine blood films, and these patients responded to quinine.

The mean stay in hospital of these bronchitic patients was 11 days.

Minor Upper Respiratory Infections

This group included cases of coryza, pharyngitis, tracheitis, and sinusitis. They had been sent to hospital owing to a considerable pyrexia, which in practically all instances lasted at most 24 hours, when the patients were convalescent, apart from the very small number (five) suffering from sinusitis. In none of these cases were malaria parasites found.

Discussion

There is clear evidence that the African is much more susceptible to acute respiratory infections in the Tropics than the European. During the period under review there were only a few cases of bronchitis and minor upper respiratory infection and no cases of pneumonia or bronchopneumonia in the European wards of the hospital. Chill would appear to be a very important precipitating factor, as shown by the three peaks of high incidence of respiratory infection during the nine-months period. Two of these peaks were associated with the arrival of fresh troops after transit by sea entailing sleeping on deck, when the night cold of a moving ship affects the African severely. The third peak occurred in January, when the weather is at its coldest and the Europeans are at their fittest, with a low sick rate.

It is worthy of note that in all this series only six showed malaria parasites, whereas in the European any acute infection, by lowering the general resistance, allows latent malaria to manifest itself.

Although respiratory infections are seen to be the cause of much sickness, with removal to hospital and temporary loss of man-power, they respond readily to treatment. Serious complications are rare and the death rate low, and the permanent loss of man-power to the Army is very small.

Summary

Of 1,250 admissions to the African wards of the medical division of a general hospital in West Africa, 375 (30%) were acute respiratory infections.

Only one of these cases was of tropical origin, being an instance of paragonimiasis.

There were only two deaths among 76 cases of acute lobar pneumonia (2.6%). No deaths occurred in 52 cases of bronchopneumonia. The third death in the whole series was that of a soldier admitted with advanced lung abscess.

Complications were very rare: among the lobar pneumonia cases, one lung abscess and one sterile effusion; and one interlobar effusion in a case of bronchopneumonia.

An important aetiological factor in these respiratory infections appears to be a degree of chill not affecting Europeans.

The mean stay in hospital for the various groups was as follows: lobar pneumonia, 21.8 days; bronchopneumonia, 20.5 days; pleurisy, 17.2 days; bronchitis, 11 days.

Our thanks are due to Brig. R. A. Hepple, O.B.E., M.C., late R.A.M.C., for permission to publish this article.

NIGHT VISION IN THE ARMY

REPORT OF 10,333 TESTS

BY

A. LISTER, F.R.C.S.

Major, R.A.M.C.

AND

J. W. BISHOP, M.B., Ch.B., D.O.M.S.

Lieut., R.A.M.C.

The purpose of this article is to give additional facts to those already published by Rycroft (1942) and Craik (1943) on the conditions of the Army night-vision test and to place on record the results of a large number of tests.

Rycroft has already given an account of the Army night-vision test apparatus. In this series a certain modification of the technique described by him was employed, and is mentioned below. The brightness figures in Table I have kindly been supplied by Dr. K. J. W. Craik of the Psychological Laboratory, Cambridge, who designed the test. He has asked us to emphasize that these figures are approximate only, because the