دراسة تجريبية على عترة الباستريللا فـــــى الحيوانات المختلفة بأسيوط

م. مراد ، س. العمروسى ، أ. بركات ، ط. العـلاوى

تم دراسة مدى ضراوة عترات الباستريللا ملتوسيدا ب ، أ ، د ، هـ المكونـة من عترات قياسية وأخرى محلية معزولة من أغنام ، أبقار وكلاب على الأغنام وقـــد تبين من هذا البحث أن العترة "أ" من ميكروب الباستريللا ملتوسيدا أشد ضراوة على الأغنام حيث أدت الى نسبة نفوق عالية بينما العترة "ب" لم تؤدى الـــى أى نفوق للأغنام المحقونة فى نفس الوقت الذى أدت فيه العترات د ، هـ الى بعـــض الوفيات فى الأغنام المحقونة .

Depts. of Medicine & Infectious Diseases,
Faculty of Vet. Med. Assiut University,
Head of Dept. Prof. Dr. S. EL-Amrousi.

EXPERIMENTAL STUDIES OF SOME STRAINS OF PASTEURELLA MULTOCIDA FROM DIFFERENT ANIMALS IN ASSIUT.

(With One Table and Four Figures)

By

M.MORAD., S.EL-AMROUSI., A.BARAKAT and T.EL-ALLAWY.

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SUMMARY

Previously identified strains of pasteurella multocida types B,A,D and E were used for studying the Pathogenicity of each separate strain in sheep. The used strains were standar and some local strains isolated from sheep, cattle and dog.

Pasteurella multocida type A strains were highly virulent to sheep and led to higher mortalities than other strains while type B produced no mortalities, however type D and E strains produced some mortalities.

INTRODUCTION

Concerning the nomeclature of pasteurella organisms, Carter and BAIN (1960) used pasteurella multocida instead of pasteurella septica (Flugge, 1886). Serological classification of pasteurella organisms according was carried out by Ysef (1935) into groups I,II,III and IV. However, anothr classification was introduced by Carter (1955) who indentified the strains as B,A,C and D corresponding to types I,II,III and IV Robert strains respectively.

Concerning the susceptibility of sheep to pasteurella strains, Barakat et al (1976) reported that the Rhmani sheep appeared to be not susciptible to pasteurella multocida type I, however, he noticed that a calf was died as a result of experimental inoculation (S/C) with pasteurella multocida type I.

Lotfy, et al (1977) isolated 9 strains of pasteurella multocida from sheep, 7 of which were from clinical cases showing lesions similar to casious lymphadinitis, the strains were type B (Carter I).

The aim of the present study was to investigate the susceptibility of sheep to different strains of pasteurella multocida isolated from different animals.

MATERIALS AND METHODS

I - Pasteurella multocida organisms:

Lypholized ampules containing identified strains of pasteurella multocida of the following types:

Type B isolated from sheep (Kom-oshim 235 and Aswan 3259), type A isolated from cattle (El-Mahager), type D strain isolated from cattle (El-Marge) and type E strain isolated from a police dog (A dog strain).

II- Animals:

80 white mice 4 weeks old, of about 80 gms weight.

18 clinically healthy sheep, 2-3 years old proved to be free from internal blood parasites, 2 sheep were kept as control. Animals were examined clinically twice a day and tested for the presence of antibodies against pasteurella multocida using slide agglutination test (Namioko and Murata, 1961).

III-Media:

a- Sterile nutrient broth.

b- 10% blood agar.

Methods:

Reconstitution of the ampules, reactivation and obtaining the organisms in pure cultures were carried out according to(Cruickshank,1975) Experimental animals were divided into 4 groups (I-IV) included 5,4,4 and 5 animals respectively.

Preparation of cultures for infection of sheep:

The inoculated broth was tested for the presence of pasteurella multocida. The number of pasteurella organismis were determined according to Macfoland using Nephlometer barium sulphate standards.(ABD-ELMOTY 1972).

The following table shows the infection of sheep groups with different strains of pasteurella multocida:

Groups	Number of animals	Type of strain inoculated to each animal.
I	5	sheep no I(B) Soft Khalids.
		" " 2(B) Aswan 3259.
		" " 3(B) Kom-oshim 253.
		" " 4(B) " " "
		" " 5(B) Standard strain.
II	4	sheep no I(A) Standard strain.
		" " 2(A) Isolated from cattle.
		" " 3(A) " "
		" " 4(A) El-Mahager.
III	4	sheep no I(D) Standared strain.
		" " 2(D) From cattle.
		" " 3(D) From cattle.
		" " 4(D) El-Mahager.
IV	5	sheep no 1,2,3 and 4 inoculated with (E) strain (a dog strain)
		" " 5(E) Standared strain.

RESULTS

All infected animals in each group showed an elevation in body temperature and an increased pulse and respiratory rates (Fig. I-4). Examination of blood smears failed to detect the micro-organism. Death occured in sheep no 1,2 and 3 (group II), sheep no 1,2 (group III) and sheep no I and 5 (group IV).

The characteristic post mortem lesions in dead animals were in the from of congestion of mucosal and submucosal vessels, congestion of lungs and haemorrhages on the cronary fat.

The micro-organism was isolated from the heart blood of dead animal.

DISCUSSION

It is well known that pasteurella multocida organisms are pathogenic for different animal species, however, Marsh (1953) and Palit and Roa (1969) described it as a normal inhabitant in the upper respiratory tract.

From the obtained results, it was found that no deaths occured after experimental infection with type B strain, this was in confirmity with that mentioned by Barakat et al (1966). The results showed also that type A strain was more virulent, where 3 out of 4 infected sheep died. This is in agreement with views of Carter and Annau (1953) and Shalinskii (1959). The mentioned symptoms resembled those described by Buhr and Zympt (1965) and Misra (1970).

The post mortem lesions as congestion of internal organs and blood vessels were in confirmity with those mentioned by Marsh (1953). Additional signs as bronch-pneumonia and oedema of the brain were reported by Buhre and Zympt (1965).

Success in isolation of the micro-organism in this investigation was previously reported by Misra et al (1970).

All infected animals with type D and E strains showed an elvated body temperature and increased pulse and respiratory rates. The micro-organism was isolated from heart blood of dead animals.

There are no available literatures concerning the isolation of pasteurella multocida type D and E, however, Carter (1961) considered pasteurella multocida type E as a causative agent of haemorrhagic septicaemia of cattle in central Africa.

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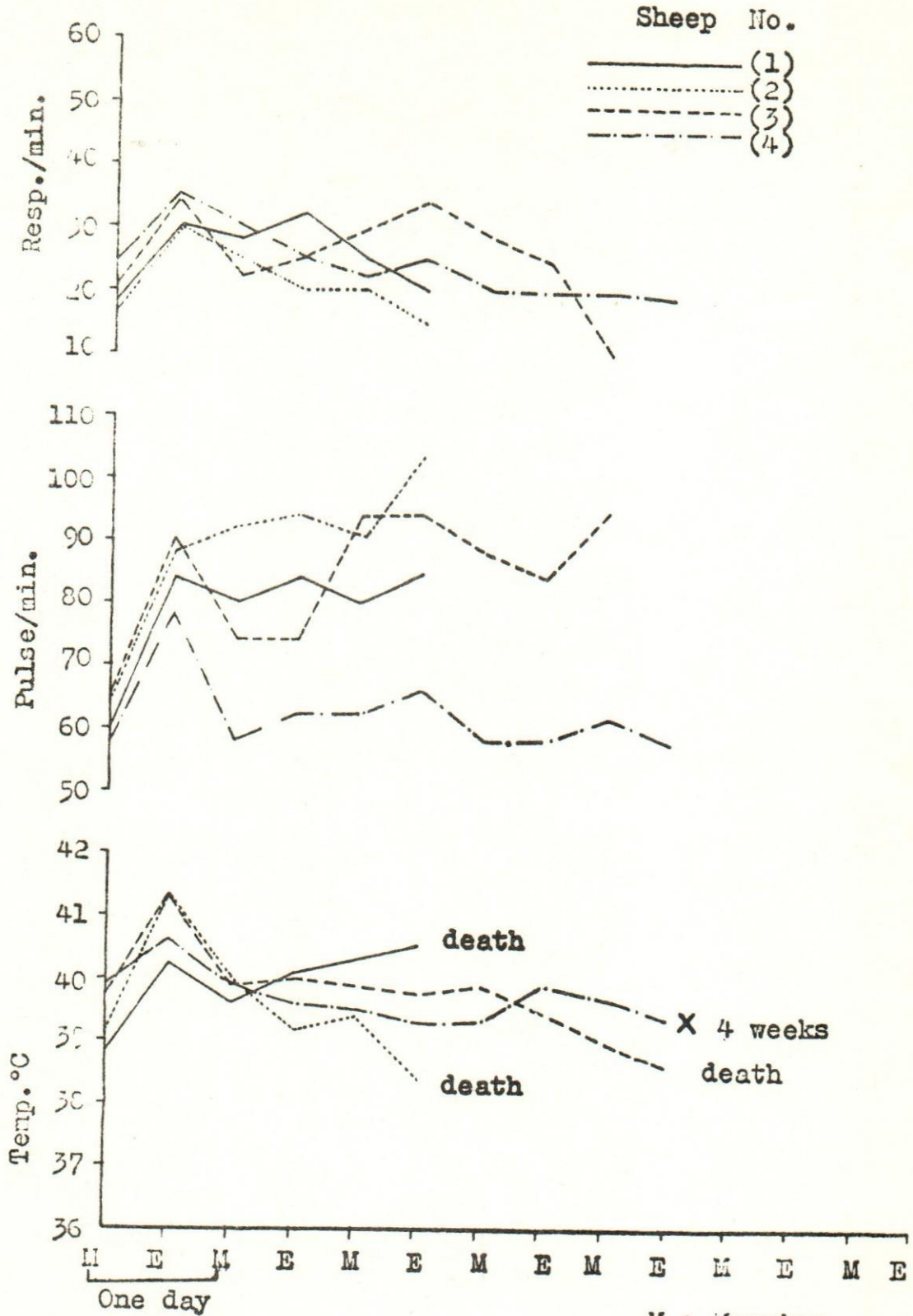

Fig. II

Body temp., Pulse rate, Resp. rate in sheep injected with Past. mult. type(A) .

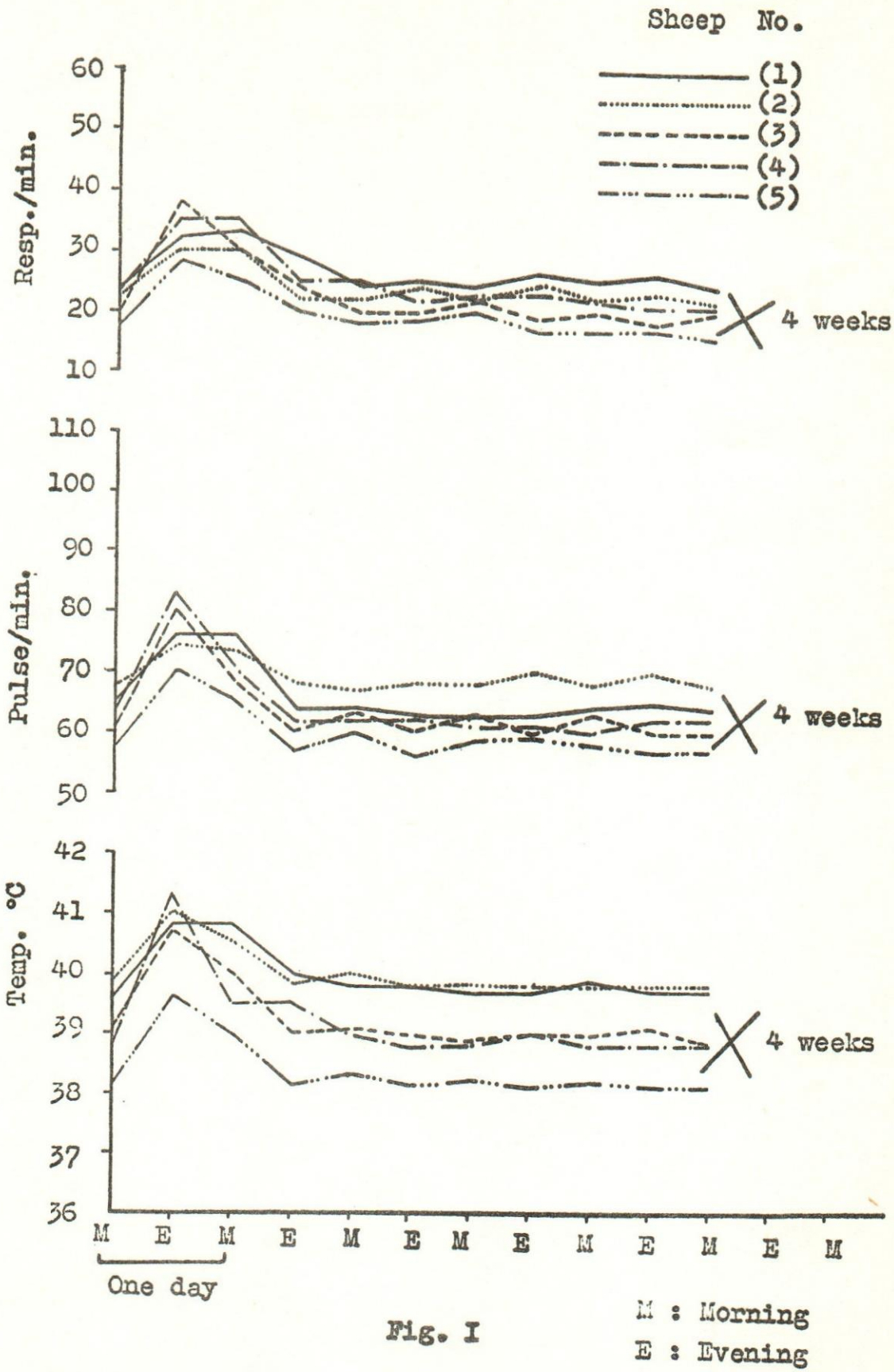

Fig. I

Body temp., Pulse rate, Resp. rate in sheep injected with Past. mult. type (B).

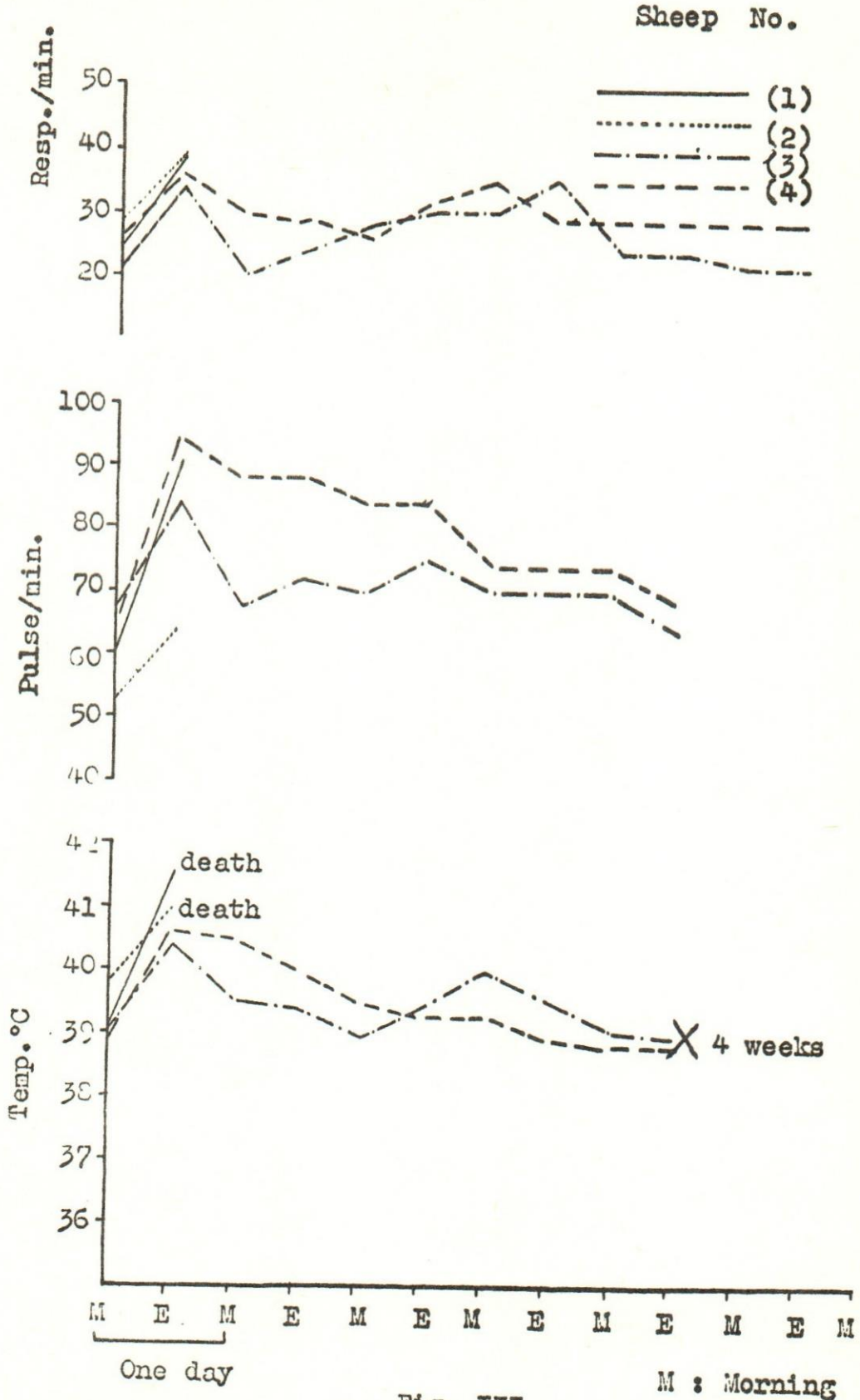

Fig. III

Body temp., Pulse rate, Resp. rate in sheep injected with Past. mult. type (D) .

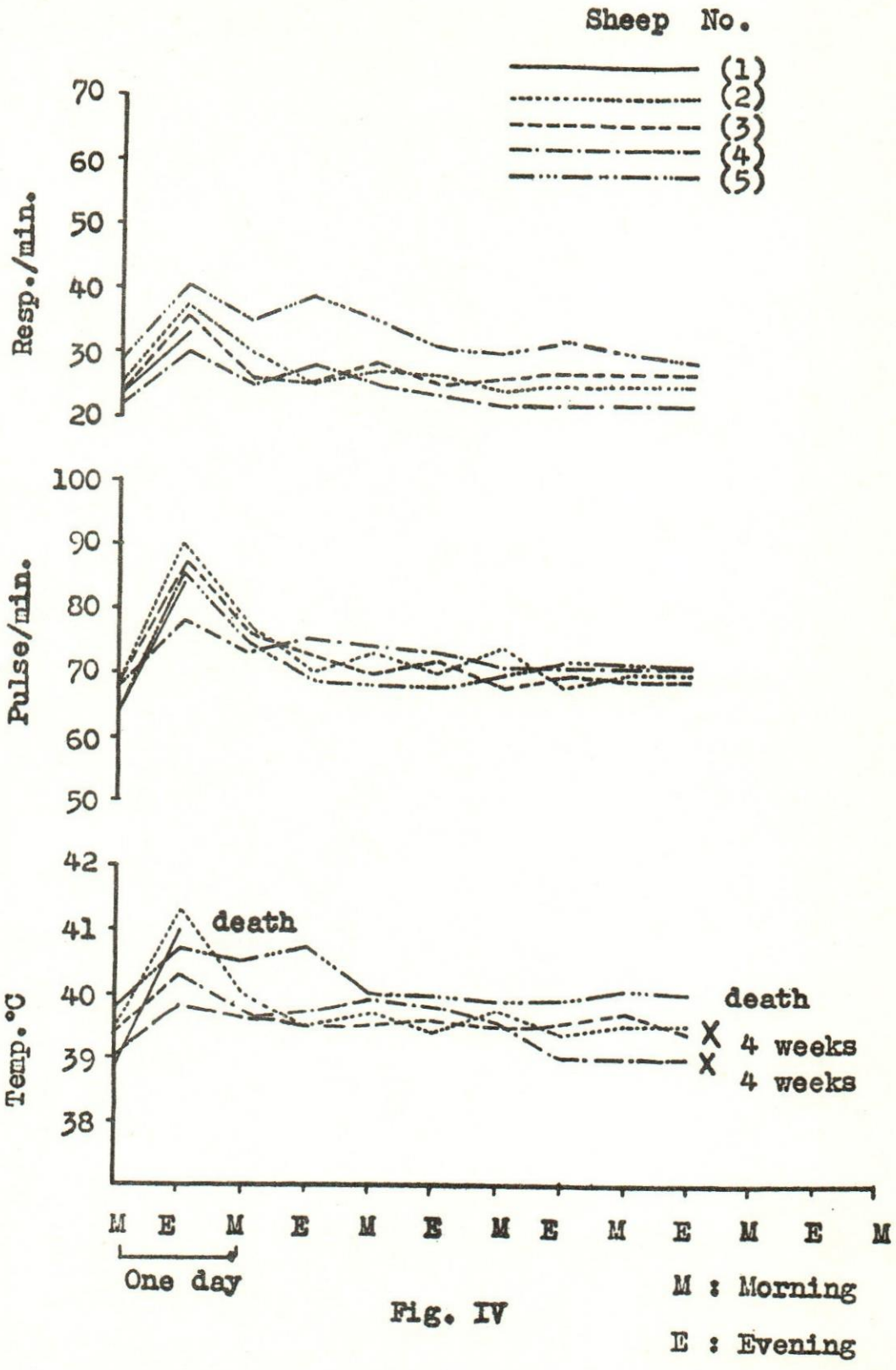

Fig. IV

Body temp., Pulse rate, Resp. rate in sheep injected with Past. mult. type (E) .