

Original Research Article

In-Vitro Drug Susceptibility of Isolates from Infertile Large Animals

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ABSTRACT

A considerable variation pattern was observed in the susceptibility patterns of different organisms isolated from repeat breeding cattle against various chemotherapeutic agents tested. Antibiotics viz. Chloramphenicol, Ciprofloxacin and amikacin inhibited 100 per cent of the isolates. Norfloxacin, Kanamycin, Gentamicin, Oxytetracycline, Nalidixic acid, nitrofurantoin, furazolidone, erythromycin, Refampicin, cephalexin, streptomycin, ampicillin, co-trimazole, amoxicillin and penicillin showed variable degree of effectiveness in descending order varying from 98.5 per cent to 5.9 per cent. All the isolates were found to be resistant to oxacillin.

Keywords

Antibiotics,
Infertility

Introduction

Indiscriminate use of antibiotics to control the disease or wide spectrum use of antibiotic for disease control make or develop the resistant strain of bacteria. So it is necessary to stamp out a particular infection and find out the antibiotic which are effective and less toxic antibacterial agents, it is essential to ascertain the sensitivity of the microorganism. This study reports the results of in-vitro sensitivity test

conducted on 67 bacterial strains isolated from repeat breeding cattle.

Materials and Methods

The in-vitro study or resistant pattern of 67 bacterial isolates were tested against 20 different antimicrobial agents (Table N0.-1) using commercially available antibiotic disc (Hi-Media, Laboratory, Mumbai) as per

method described by Cruickshank, 1968. Sixty seven bacterial cultures were recovered from cervical mucus of repeat breeder cattles from different villages (Lama, Karahiya, pachnehi, Luktara, Bargahani and Chahitara), which are comes under the Government Veterinary Hospital Lama District Banda, Bundelkhand region. Take the swab samples and keep these swabs in ice box to avoid any contamination and brought to the Veterinary Microbiology laboratory, C.V.Sc & A.H., N.D. University, Kumarganj, Faizabad (U.P).

The pure bacterial culture for which drug sensitivity was to be carried out were inoculated in 05 ml sterile nutrient broth medium and incubated at 37⁰C for 24 hours. Broth culture in 0.5 ml amount was poured in the nutrient agar plates and the inoculums were well spread over the agar surface. The inoculated plates were dried in the incubator for 15 minutes at 37⁰C. Then mark properly by marker pen for correct dragging of the antibiotic discs on the agar surface. The charged plates were incubated at 37⁰C in an incubator for 24 hours.

The drug sensitivity was assessed on the basis of diameter of the zone of inhibition. The test organism was considered sensitive or resistant as per the standard Hi-Media inhibition zone scale.

Results and Discussion

A considerable variation was observed in the susceptibility patterns of different isolates against the various antibiotics tested during the study. The results of in-vitro sensitivity in the present study indicated that chloramphenicol, ciprofloxacin and amikacin were the most effective antibiotics against all different types of micro-organisms. The coming results also indicated that Kanamycin, norfloxacin and

Gentamicin, were effective antibacterial agents against 98.5 per cent, 98.5 per cent and 95.52 per cent of the organisms, respectively. Nalidixic acid, nitrofurantoin and tetracycline inhibited the growth of 79 per cent organisms. Antibiotic tetracycline is moderate sensitive for infertile organisms after that furazolidone, erythromycin, penicillin, refampicin, ciphalexin and doxycyclin is above 50 per cent and antibiotic which are below 50 per cent that is streptomycin, ampicillin, co-trimazole and amoxicillin whereas oxacillin shows resistant against infertility involve micro-organisms. (Table 1)

Major infertility problems are found in large animals, in which if proper managerial care and nutritional therapy along with treatment is done to get rid off the major infertility problems. Above findings are also reported by the Maurya *et al.*, (1992) who reported 93.2 per cent isolates sensitive to chloramphenicol and 90.5 per cent to nitrofurantoin. Ramaswamy *et al.*, (1991) reported gentamicine, kanamycin and amikacin to be highly effective antibiotics against bacterial isolates from repeat breeder bovines. Sharda *et al.*, (1991) reported gentamicin, chloramphenicol and oxytetracyclin as most effective drugs. The sensitivity pattern of other antibiotics like penicillin, ampicillin, amoxicillin, oxacillin, co-trimoxazole etc. revealed that less than 50 per cent of the isolates were sensitive to these agents in the present study. Ramaswamy *et al.*, (1991) reported that streptomycin and penicillin as ineffective antibiotics whereas Sharda *et al.*, (1991) reported that penicillin very effective against bacterial isolates, in-vitro study. Maurya *et al.*, (1992) found that ampicillin to be effective against 90.9 per cent of the bacterial isolates whereas in the present study reported that ampicillin was found effective against 43.28 per cent only.

Table.1 Drug sensitivity/ resistant pattern of microbial isolates

Sr. No.	Name of Antibiotics	Gram positive cocci			Gram negative rod			Gram positive bacilli			Total		
		Tested	Sensitivity	% Sensitivity	Test ed	Sensit -ivity	% Sensitivit y	Tested	Sensitivity	% Sensitivity	Tested	Sensitivity	% Sensiti vity
1	Amikacin	20	20	100	32	32	100	15	15	100	67	67	100
2	Amoxycillin	20	07	35	32	09	28	15	---	0	67	16	24 (23.88)
3	Ampicillin	20	08	40	32	10	31	15	11	73	67	29	43
4	Cephalexin	20	05	25	32	22	69 (68.7)	15	10	67 (66.66)	67	37	55
5	Chloramphenicol	20	20	100	32	32	100	15	15	100	67	67	100
6	Ciprofloxacin	20	20	100	32	32	100	15	15	100	67	67	100
7	Co-trimoxazole	20	10	50	32	11	34	15	---	0	67	21	31
8	Doxycyclin	20	17	85	32	15	47 (46.9)	15	03	20	67	35	52
9	Erythromycin	20	08	40	32	22	69 (68.9)	15	11	73	67	41	61
10	Furazolidone	20	10	50	32	22	69 (68.9)	15	11	73	67	43	64
11	Gentamycin	20	20	100	32	30	94 (93.7)	15	12	80	67	64	96 (95.52)
12	Kanamycin	20	18	90	32	32	100	15	15	100	67	66	99 (98.50)
13	Nalidixic acid	20	16	80	32	25	78	15	12	80	67	53	79
14	Nitrofurantoin	20	14	70	32	26	81	15	13	87 (86.88)	67	53	79
15	Norfolxacin	20	20	100	32	32	100	15	13	87 (86.88)	67	66	99 (98.50)
16	Oxacillin	20	---	0	32	---	0	15	---	0	67	---	0
17	Penicillin	20	---	0	32	4	13 (12.5)	15	---	0	67	04	6 (5.9)
18	Refampicin	20	12	60	32	18	56	15	10	67 (66.66)	67	40	60 (59.70)
19	Streptomycin	20	13	65	32	10	31	15	08	53	67	31	46
20	Tetracyclin	20	16	80	32	25	78	15	12	80	67	53	79

Thus, on the basis of findings of present study it could be concluded that the different bacterial agents might show variable degree of effectiveness in different areas to particular infectious agents and therefore antibiotic sensitivity testing should invariably be carried out in order to rationalize the treatment.

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