Pakistan J. Zool., vol. 48(1), pp. 301-302, 2016.

Short Communication

Efficacy of Ivermectin Against Sarcoptic Mange in Camel

M. Irfan Zahid, Azhar Maqbool, S. Anjum, Kamran Ashraf, M.S. Khan, Syed Shakeel Shah* and Sabila Afzal
Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore

Article information
Received 17 January 2015
Revised 19 May 2015
Accepted 15 June 2015

Authors' Contributions
AM designed the study, analyzed the data and wrote the article. MIZ did skin scraping. SSS and SA determined drug efficiency. SA, KA, MSK helped in data analysis. MIZ, SSS and SA helped in writing article.

Key words
Ivermectin (Ivomec), sarcoptic mange, camel.

ABSTRACT

Ivermectin at the dose rate of 0.2 mg/kg body weight and 0.4 mg/kg body weight as subcutaneous injection repeated 3 times at 15 days interval proved to be 100% effective against light, medium and heavy infestation of sarcoptic mange in camels. No side effects were observed with this drug. The untreated control animals remained positive for the mange throughout the course of treatment.

Mange in camel is a very common dermatological problem and is mostly caused by *Sarcoptes scabiei* var. *Cameli*. It is mostly prevalent in cold and wet weather and spreads slowly during summer months (Rathore and Lodha, 1973; Rehman *et al*., 2001). The affected animals are observed to continuously rub and scratch their body, lose of hairs, stop feeding and then become unfit for work for a long period (Bekele *et al*., 2012). Such animals become susceptible to many other bacterial infections and even mortality is not uncommon if untreated. The infected animals are also source of human scabies (Tikaram *et al*., 1991, Singh and Veer, 2005).

A new antiparasitic drug Ivomec injection (1% w/v solution of Ivermectin) has been effectively used for the treatment of external and internal parasites of cattle, buffaloes, sheep and goats (Fowler, 1986). Ivermectin (Ivomec), a product of MSD AGVet, division of Merck Sharp and Dohme, Holland is a derivative of the avermectins macrolytic lactones produced from *Streptomyces avermectin* (Campbell, 1981). It is being tried in camels affected with sarcoptic mange, in this study.

Materials and methods

A total of 35 camels from 6-10 years of age naturally infested with sarcoptic mange were used in this study, of which 5 animals were kept as untreated control. Ivermectin are given subcutaneously at the two dose levels *i.e.*, 0.2 mg/kg b.w. and 0.4 mg/kg b.w. and repeated 3 times at 2 weeks intervals. All these animals were kept under similar feeding and managemental conditions during the course of study.

All the treated and control animals were constantly observed for mange lesions. Their skin scrapings were collected at 0, 15th, 30th, 4th and 60th day post treatment from square centimeter areas (Tarallo *et al*., 2009) at 5 places of the skin. The scrapings were kept at 10% KOH (Dixit *et al*., 2009) for 24 h and number of mites per square centimeter was counted using Stereomicroscopy (Soulsby, 1982). The number of mites counted was expressed per square centimeter of the skin. The intensity of infestation was assigned into light, medium and heavy (240-260, 340-360 and 510-540 live mites per gram scraping respectively). The efficacy of Ivermectin was injected subcutaneously in doses of 0.2 mg/kg b.w. and 0.4 mg/kg b.w. against sarcoptic mange mites in light, medium and heavy infestations living on 5 animals showed these degrees of infestation.

Results and discussion

The efficacy of Ivermectin on sarcoptic mange is recorded in Table I.

Ivermectin at the rate of 0.2 mg/kg body weight showing light, medium lesions of sarcoptic mange reduced live mite counts till they became zero in skin scrapings after 60 days of treatment. Ivermectin at 0.4 mg/kg body weight reduced mite counts to zero in skin scrapings of such animals on the day 45 of administration whereas camels showing heavy lesions of sarcoptic mange and treated with the respective doses of Ivermectin showed zero counts of live mites in scrapings after 60 days of treatment. The results of present study were in line with those of some workers (Hussan *et al*., 1989, Njanja, 1991, Raisinghani *et al.*, 1989). They reported that 3 injections of Ivermectin at an interval of 15 days at the dosage rate of 0.2 mg/kg body weight are

* Corresponding author: pak_shah@hotmail.com
0030-9923/2016/0001-0301 $ 8.00/0

Table I.- Efficacy of ivermectin against sarcoptic mites.

Intensity of Infestation	Dose in mg/kg body weight	No. of animals in each group	Average number of live *S. scabiei var. cameli* gram of scraping				
			0 Day	15th day	30th Day	45th Day	60th Day
Light	0.2	5	240	190 (20.8%)	110 (54.2%)	50 (79.2%)	0 (100%)
	0.4	5	260	130 (50.0%)	60 (76.9%)	0 (100%)	0 (100%)
Medium	0.2	5	340	240 (29.1%)	190 (44.1%)	80 (76.5%)	0 (100%)
	0.4	5	360	245 (31.9%)	90 (75.0%)	0 (100%)	0 (100%)
Heavy	0.2	5	510	450 (11.8%)	260 (49.0%)	60 (88.2%)	0 (100%)
	0.4	5	540	420 (22.2%)	230 (57.4%)	40 (92.6%)	0 (100%)

100 per cent effective in camel. Similar results have also been reported by other workers (Chellapa *et al*., 1989).

After 10 days injection of Ivermectin, biting, itching and uneasiness completed subsided, also reported by Gorakh *et al*. (2000). Alopecia and keratinization were gradually reduced, scraped wounds healed gradually. Animals in control group remained positive for sarcoptic mange throughout the course of treatment.

Conflict of interest declaration

We declare that we have no conflict of interest.

References

Bekele, A.D., Bekela, J., Adane, B. and Seferan, D., 2012. *J. Vet. Med. Anim. Hlth.*, **4**: 71-77.

Campbell, W.G., 1981. *N. Z. Vet. J.*, **29**:174-178

Chellapa, E., Thiruthallinathan, R. and Ravishankar, M., 1989. *Indian Vet. J.*, **66**: 451.

Dixit, S. K., Singh, A.P. and Tuteja, F. C., 2009. *Vet. Pract.*, **10**: 141-144.

Fowler, M.E., 1986. *Zoo and wild animal medicine*. W.B. Saunders Co., Philadelphia.

Gorakh, M., Sena, D., Rajendar, K. and Sahani, M.S., 2000. *J. Vet. Parasitol.*, **14**: 27-30.

Hussan, A.B., Kawther, S.E. and El-Hady, A. 1989. *Indian Vet. J.*, **66**: 1164-1167.

Njanja, J. C., 1991. *Bull. Anim. Hlth. Prod. Africa*, **39**: 275-279.

Raisinghani, P.M., Kumar, D. and Rathore, M.S., 1989. *Indian Vet. J*., **66**: 1160-1163.

Rathore, M.S. and Lodha, K.R., 1973. *Indian Vet. J.*, **50**: 1083-1088.

Rehman, A.M.B., Osman, A.Y. and Hunter, A.G., 2001. *Sudan J. Vet Res.*, **17**:1013.

Singh, K. and Veer, M. 2005. *Parasitic zoonosis* 1st Ed. Poimer Publication, Jaipur, India.

Soulsby, E. J. L., 1982. *Helminths, arthropods and protozoa of domesticated animals*. Bailliere Tindall, London.

Tarallo, D. V., Lia, R.P., Sasanelli, M., Cafarchia, C. and Otranto, D., 2009. *Parasit. Vect.*, **2**:13.

Tikaram, S. M., Bansal, S.R., Satha, K.C. and Carg, D. N., 1991. *Newsletter*, **8**:5.