Authors' reply

Dear Editor,

We thank the correspondents for showing interest in our work and for bringing forth important aspects.[1] Our study looked at the clinical and microbiological characteristics of women with cervical discharge as part of cervicitis and pelvic inflammatory disease (PID). We also studied the post-treatment (syndromic management) response, both clinical and microbiological, in these cases.[2]

The clinical records of 70 cases were analysed at baseline, while microbiological analysis [bacterial culture and polymerase chain reaction (PCR)] were available for 67 cases and there were no controls in our study. Hence, the heading of Table 1 of original publication is incorrect and should be read as 'demographic and clinical profile of cases'. We apologise for the same. The post-syndromic treatment records of 32 cases were available amongst which test of cure/ microbiological results of 28 cases were available. While analysing the data, clinical or microbiological or post-treatment results, the respective denominators were used. Hence, the incongruity of the denominator is due to difference in the number of patient records available at different time points, this being a retrospective analysis.

Grading of clinical improvement as 'minimal/none', 'moderate' and 'complete' was done both by the patient and the examiner. The post-treatment clinical response in cases with *Mycoplasma hominis* infection was 'minimal/ none' and 'complete' improvement in one case each of cervicitis and PID, respectively. For *Ureaplasma* species, amongst 8 cases of cervicitis, majority showed 'minimal/ none' clinical improvement with syndromic management (6/8, 75%), while one case each (1/8, 12.5%) showed 'moderate' and 'complete' improvement respectively. For ten PID cases which had *Ureaplasma* species positivity; 'complete' clinical improvement was seen in 8 cases (80%) and one case each showed 'minimal/none' and 'moderate' improvement, respectively. The probable reason for greater clinical response in those treated with doxycycline (as part of KIT 6 of National AIDS Control Organisation, India) versus azithromycin (as part of KIT 1) could be due to increased resistance of non-gonococcal, non-chlamydial organisms to azithromycin compared to doxycycline.[3] The microbiological response to treatment in these cases showed similar trend as clinical improvement, however microbiological cure was less. Post-treatment *Ureaplasma* species was detected in 5 out of 13 cases (38.4%) of cervicitis and 3 out of 15 (20%) cases of PID respectively [Table 1]. We found *Ureaplasma* species by PCR in the majority of the cases at baseline, both overall (25/67, 37.3%) and separately for cervicitis (12/41, 29.3%) and PID (13/26, 50%).

As pointed out, positivity of *Ureaplasma* species PCR was more in treated cervicitis cases (38.4%, 5/13; Table 3 of original publication) compared to baseline (29.3%, 12/41; Table 2 of original publication).[2] However, if we only consider results of 28 follow-up cases, then the pre-treatment positivity for *Ureaplasma* species by PCR was 8 out of 13 cases of cervicitis (61.5%) [Table 1]. Hence, it is tough to draw firm conclusions from the data as the numbers are small

Table 1: Pre- and post-treatment results of culture and molecular tests of endocervical swabs of cases (n = 28)

	Total n = 28 (%)		Cervicitis n = 13 (%)		Pelvic inflammatory disease n = 15 (%)	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Infectious etiology	20 (71.4)	9 (32.1)	9 (69.2)	5 (38.4)	11 (73.3)	4 (26.6)
Mycoplasma hominis (culture)	2 (7.1)	2 (7.1)	1 (7.6)	1 (7.6)	1 (6.6)	1 (6.6)
Mycoplasma hominis (PCR*)	3 (10.7)	2 (7.1)	1 (7.6)	1 (7.6)	2 (13.3)	1 (6.6)
Ureaplasma species (culture)	13 (46.4)	6 (21.4)	6 (46.1)	4 (30.7)	7 (46.6)	2 (13.3)
Ureaplasma species (PCR*)	18 (64.3)	8 (28.5)	8 (61.5)	5 (38.4)	10 (66.6)	3 (20)
Chlamydia trachomatis (PCR*)	5 (17.8)	1 (3.6)	1 (7.6)	1 (7.6)	4 (26.6)	0 (0)
Neisseria gonorrhoeae (culture)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

*: Polymerase chain reaction

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and data was retrieved retrospectively. Nevertheless, we agree with correspondents that *Ureaplasma* species may just be a bystander and not an actual causative agent. We are also of the opinion that quantitative PCR might have been more conclusive in establishing the causation. In addition, further characterisation of *Ureaplasma* species into U. *parvum*, U. *urealyticum* would have added more clarity regarding causation. However, despite these suggestions, it is still not appropriate to assess causation based on a retrospective study design.

Regarding the concern raised on the study by Dhawan *et al*., the main objective of the study was to assess the prevalence of *Chlamydia trachomatis*.[4] They did not assess the role of other pathogens like *Ureaplasma* species, *Mycoplasma* etc. Hence it doesn't seem relevant to compare the two studies with different objectives, and timelines, inclusion and exclusion criterias (only cervicitis and PID cases were included; exclusion of cases with other sexually transmitted infections, incomplete clinical and microbiological records). Of note, the rates of positivity of *Chlamydia trachomatis* infection in our study and study by Dhawan *et al*. were similar (14.9% vs 8.5–12.5%).[2,4]

Regarding the claim in the conclusion, we found 'complete' clinical improvement in 15 out of 32 cases (46.9 %). Microbiologically, infectious etiology was seen in 44.7% (30/67 cases) at baseline versus 32.1% (9/28 cases) post-treatment overall. Correspondents have emphasised only on the cervicitis cases (36.5% vs. 38.4%). On analysis of only the 28 follow-up cases, infectious etiology was seen in 9 (32.1%) cases post-treatment versus 20 (71.4%) cases at baseline, showing resolution in more than 50% cases. We would again like to thank the correspondents for giving attention to our work. To conclude, the limitations of our study were retrospective study design, small sample size, inability to further characterise *Ureaplasma* species and conduct quantitative PCR. There is a need for long- term follow up studies with larger sample size from our population to determine the role of non-gonococcal non-chlamydia pathogens causing cervical discharge.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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