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Abstract (poster session)

Usefulness of an imaging technique for genital Chlamydia infection assessment in the murine model

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Objectives: Untreated Chlamydia trachomatis infection can wreak havoc on the reproductive organs profoundly affecting fertility in women. Taken together, the high rate of asymptomatic infections and the severity of the infection related pathology indicate that control of chlamydial infections would require the development of new diagnostic non-invasive techniques for genital infection. Here we report about a comparison between Positron Emitting Tomography and traditional histology, in a mouse model of genital C. muridarum infection. **Methods:** Animals used were 22 female Balb/c mice, 6-8 weeks old. All animals received 2.5 mg of medroxyprogesterone acetate i. m. 9 and 2 days prior the infection. Eighteen mice were challenged intravaginally with 10^6 IFUs of C. muridarum under Ketamine anaesthesia. As control, 4 animals were challenged with sucrose phosphate buffer. At 5, 12 and 18 days after challenge 9 infected mice and 1 control underwent a ^{11}C -Choline PET. Each animal was anaesthetised and injected with approximately 20 MBq of ^{11}C -Choline. Images were acquired with a small animal PET tomograph for 20 min. Standard uptake value (SUV) was calculated measuring concentration of labelled tracer in the region of interest and correcting it for body weight and injected dose. Twelve infected mice were sacrificed to study histology of genital tract at 5, 12, 18 days after infection (3 infected animals, plus 1 control at each point). Sections of hysterectomy specimen were preserved in 10% neutral buffered formalin for 48h and put in embedding cassettes, then processed in automatic tissue processor. After dehydration they were infiltrated with molten paraffin wax. Four- μm thick sections were cut with microtome, stained with haematoxylin-eosin and mounted on glass microscope slides. **Results:** At 5 days, mean vaginal SUV ($\pm\text{SD}$) of cases was 0.83 ± 0.39 , whereas the control showed a value of 0.278. At 12 and 18 days, SUV of cases increased to 0.94 ± 0.25 and 1.17 ± 0.21 , respectively, whereas SUV of the control was 0.299 and 0.302, respectively. All sections of hysterectomy of infected mice showed an intense grade of inflammation, characterized by an acute infiltrate in the initial phase, and by a prevalent chronic infiltrate in the successive period. Tissues collected from the 3 control mice showed only mild proliferation of endometrium. **Conclusion:** ^{11}C -Choline PET seems to be a promising diagnostic technique to assess inflammation due to Chlamydia genital infection.