membrane dynamics (Sandvig and Deurs, 1990). This finding also supports our theory of participation of α-tubulin in the process of the AR. On the other hand, Fath and Burgess (1993) suggest that microtubules are normally prevented from interacting with the plasma membrane and this interaction could be generated by disruption of the actin cytoskeleton, which is similar to the conclusion of van Deurs et al. (1996). A new point of view on the AR might issue from these reports. First of all, at the beginning of the AR the actin network could be disrupted and, consecutively, the interaction of tubulin cytoskeleton with the acrosomal membrane could lead to the AR.

By our results we clearly demonstrate the presence of γ-tubulin in boar spermatozoa. This is the first evidence of the presence of γ-tubulin as a participant of the AR in boar spermatozoa, because only one report about the presence of γ-tubulin in the incorporated mouse sperm basal body complex during fertilization has been published (Palacios et al., 1993). This result is completely new and the participation of γ-tubulin in the mechanism of the AR has not been known yet. Anyway, the reaction of γ-tubulin is much stronger than it was possible to see in the case of α-tubulin. It is clear enough that γ-tubulin must play some role in the process of the AR, which might be different from the role of the other cytoskeletal proteins mentioned in our work. This problem is going to be the next field of our investigation.

Positive labeling was also observed in spermatozoa after its incubation with anti-spectrin antibody. These findings are in agreement with experiments on various mammalian spermatozoa (Virtanen et al., 1984a,b; Fouquet et al., 1991; Paleček et al., 1999). In this work we present specific changes in the localization of spectrin after the AR. They are detectable most of all in the outer acrosomal membrane and in the area of acrosome, particularly the interface between the nucleus and the inner acrosomal membrane, both in the control and in the samples treated with specific inhibitors (vinblastine and colcemide). Changeover of spectrin localization in the outer acrosomal membrane in boar spermatozoa during the AR and capacitation has been already observed by Paleček et al. (1999). In this work we document new occurrence of spectrin and its relocalization after incubation with specific inhibitors either before or after the AR. On the other hand, no detectable changes were found during the AR in hamster spermatozoa in the investigation by Fouquet et al. (1991).

In our opinion, there are two different points of view on the AR. First of all, an individual protein is responsible for the stability of the acrosome vesicle; if it is blocked, the AR starts. Second, one protein of the whole complex of cytoskeletal proteins is blocked, and that is why the AR does not take place. These events are not clear enough yet, but they are going to be the subject of our next investigation.

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