Reviewer's report

Title: A descriptive study of variables associated with obtaining nipple aspirate fluid in a cohort of non-lactating women

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Reviewer: Edward Sauter

Reviewer's report:

General
The authors report a descriptive study of 3043 women in whom nipple aspiration was attempted by Otto Sartorious, one of the pioneers in the intraductal evaluation of the breast, and found that the ability to obtain nipple aspirate fluid (NAF) was related to age, being married, history of pregnancy, tranquilizer use and history of endocrine problems. Interestingly, after age adjustment, OCP use did not increase and postmenopausal did not decrease NAF yield, but HRT use did decrease yield. A major strength of the paper is the sample size. I do have some questions which I would like the authors to consider.

Major compulsory revisions
Based on the first sentence under Materials and Methods, "Dr Otto Sartorius, who attempted NAF collection on 3043 women." it would appear that the initial cohort was 3043. The authors later state that women with breast cancer or women diagnosed with breast cancer within six months of their initial clinic visit were excluded. This would suggest that the population analyzed for this paper would be a subset of 3043. However, under results, the authors state that "Fluid was obtained from 43% of women (1314/3043)," which would suggest that the actual number of women, before excluding those with breast cancer, was more than 3043. Please clarify.

Since the authors indicate that exogenous estrogen use was not a significant determinant of ability to obtain fluid, yet younger age was (in which estrogen and progesterone are generally at higher circulating levels than in postmenopausal women), please speculate on the scientific reasons for the apparent paradox between exogenous vs endogenous female hormone effects on NAF yield.

In the current report, the authors report a success rate of NAF collection of 43%. In a 1973 paper (Jama 224: 825-27), Dr. Sartorius reported that "For example, fluid was found in the breast aspirates of three-fourths of one series of 200 women who came to the clinic. The women ranged in age from 15-87 years, and the breasts of older women contained less fluid." And a bit later, using oxytocin, "This work is still experimental, but already we find it gives almost double the yield of fluid and cells! We are now getting 90-95% cell yields." It would be helpful to reconcile the differences in success reported by Dr. Sartorius in the earlier publication with the present report, and clarify if the current cohort includes women who received preNAF oxytocin. If it does, should these women be excluded?

An important question which needs to be addressed is whether the findings in the current report can be generalized. The finding reported are based on the use of a device developed by Dr. Sartorius in which he was the sole NAF collector, as I understand it. There are many other devices which have been developed and different NAF collection techniques. Others investigators have reported higher NAF collection success. It would be appreciated if the authors could address each of the following points (why different success rates, influence of device, influence of technique, and influence of person performing the NAF collection).

Minor essential revisions
It would appear that the reference style is not that of BMC.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes
Declaration of competing interests:

I declare I have no competing interests