REPORT

Report on participation of the ICMR International Fellow (ICMR-IF) in Training/Research abroad.

1.	Name and designation of ICMR- IF	: **Dr. Neena Malhotra** **Professor – Obstetrics and Gynaecology**
2.	Address	: **E – 9 Ansari Nagar, AIIMS** **West Campus,** **New Delhi -29**
3.	Frontline area of research in which training/research was carried out	: **Availed Short Term ICMR-DHR International Fellowship for Senior Indian Biomedical Scientists 2022-23.**
4.	Name & address of Professor and host Institute	: **Hospital Antoine Beclere** **Service de Medicine de la Reproduction et Preservation de la Fertilite** **157, rue de la porte de Trivaux** **92140 Clamart, France** **Prof. Michael Grynberg** **Chief de service** **Service de Medicine de la Reproduction de la Fertilite** **Hospital Antoine Beclere,** **Clamart & Hospital jean Verdier,** **Bondy , France**
5.	Duration of fellowship with exact date	: **31st March, 2023 to 30th Jun, 2023**
6.	Highlights of work conducted	: **Attached**
	i) Technique/expertise acquired	:
	ii) Research results, including any papers, prepared/submitted for publication	
	iii) Proposed utilization of the experience in India	:

Neena Malhotra

Signature of ICMR-IF

ICMR Sanction No. **INDO/FRC/452/(S-77)/2022-23-IHD**
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i) **Technique/expertise acquired-**

This fellowship gave me the opportunity to learn and acquire skills in various techniques for fertility preservation in young females with cancer, which would otherwise be impairing fertility due to gondo-toxicity of chemo/radiation. Theprocedure included oocyte cryopreservation, in-vitro maturation (IVM) and ovarian tissue cryopreservation. Hospital Antoine Beclare was exclusive for IVM, and got referrals from hospitals including Institute Marie Curie, Institute Gustav Roussy and Clinique Hartman and many other around Paris. The challenging cases as referrals included breast cancer, Lymphomas, soft tissue tumors besides hematological cancers and those for bone marrow transplantation. I under Prof Grynberg observed many cases of IVM done in young women as an emergency for Breast cancer and other cancers. The skills of oocyte cryopreservation were also upgraded as I leant many aspects to fine tune this procedure that would optimize the outcome, in terms of oocyte survival both of mature and immature oocytes in cancer patients.

Besides learning newer techniques, I acquired skills in administrative side of management, including setting up multi-disciplinary teams and aligning with oncology colleagues, besides procurement of equipment and consumable, maintaining survivor registries and creating live dashboards for patients.

ii) **Research results, including any papers, prepared/submitted for publication**

Since this was a 3month fellowship in a very niche area, it was not possible to conduct a research project. Essentially involved in observing cases of ovarian tissue cryopreservation (OTC) and in-vitro-maturation (IVM).

A list of cases attended is attached as Table 1 and 2

iii) **Proposed utilization of the experience in India**

Rising trends have been observed in the last decade for cancer cases among young men and women, globally and in India. The advancements in cancer diagnostics and therapy have resulted in many of them surviving leading a near normal life span for another 10-15 years. Since chemo and radiotherapy are harmful to the gonads, iatrogenic there are irreversible damage with resulting infertility in both men and women and menospusal symptoms in young females. As the number of survivors after cancer therapy is on the rise issues of infertility are a concern in these women. While oocyte and embryo cryopreservation are established methods to help these women especially in reproductive years, and are available at most ART units including AIIMS, new Delhi. However, for those in the pre-pubertal age group and when there is insufficient time for oocyte and embryo cryopreservation at hand OTC and IVM are the only options.

Both these techniques are yet not established in India, and need to be established in tertiary hospitals as AIIMS. Thorough these techniques learnt, I am in a position to augment the onco-fertility services at my institute. Besides establishing robust services, my experience to establish such units will be of help to guide other tertiary referral hospitals in the public sector to establish onco-fertility services, besides training and imparting these skills to my colleagues and students.

Table 1: Cases of ovarian tissue cryopreservation attended during fellowship

Case	Referring hospital/unit	Diagnosis	Age of patient (yrs)	Indication
1	Institut Marie Curie	Cancer Breast	29	Immediate Chemotherapy
2		Neuroblastoma	24	Radiotherapy
3	Institut Marie Curie	Cancer Breast	31	Immediate Chemotherapy
4	Necker Hospital	Sickle cell disease	15	Prior to Bone marrow transplant
5	Necker Hospital	Hodgkins Lymphoma	16	Immediate chemotherapy

Table 2 Cases of in-vitro-maturation (IVM) attended during fellowship

Cases	Site/ hospital	Diagnosis	Age (years)	Yield at IVM (number of M II matured 48 hours after pick up)
1	Hospital Antoine Beclere	Breast Cancer	32	4/7
2	Hospital Antoine Beclere	Resistant ovary syndrome	27	3/5
3	Hospital Antoine Beclere	Breast Cancer	29	10/20
4	Hospital Antoine Beclere	Generalized-immune disease on immune-suppressants	26	7/15
5	Hospital Antoine Beclere	Breast Cancer	20	2/8
6	Hospital Antoine Beclere	Breast Cancer	22	16/19
7	Hospital Antoine Beclere	SLE (Pre Chemo)	28	12/18
8	Hospital Antoine Beclere	Resistant ovary syndrome	24	5/9
9	Hospital Antoine Beclere	Cancer Breast	34	6/10

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