Medicine of the Person
76th International Meeting
29th July – 1st August 2026
F – ISSENHEIM

Conférence ***5***

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01/08/2026
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AI and obstetrics & gynaecology……
Risk? Challenge?

Slide 1

Hello to all of you and first of all, thank you for your invitation to talk about a subject that seemed relatively simple to me at first, but which became more complex as I grew to understand it better; that is to say the place of artificial intelligence in obstetrics and gynaecology. We can see that artificial intelligence has already infiltrated medical practice; a study presented in '*Le Quotidien du Médecin*' in November 2025 concerning 608 health professionals indicates that 23% of doctors use AI daily and 81% at least once a week.

Slide 2

In my presentation on artificial intelligence in obstetrics and gynaecology illustrated in my first slide, I will focus on a few areas of this specialty since it is not possible to talk about all the areas affected by it within the 45 minutes I have for my talk.

Slide 3

I will try to describe the contributions of artificial intelligence, then its risks, and will finish by highlighting the specifics of classical medical practice which, in my opinion, must serve as a common thread guiding the integration of AI into our practice.
This last part of the talk will allow me to thank once again Medicine of the Person which, through its annual conference, sheds light on different ways of looking at the future so that we may be "alive and not passively experiencing" (Marcel Légaut).

Slide 4

A/ Artificial intelligence, an opportunity for medicine

Artificial intelligence constitutes an extraordinary opportunity in our time and has increasingly played a part in all areas of obstetrics and gynaecology as indicated in the slide; prenatal diagnosis, obstetric ultrasound, mammography, assisted reproductive technology (including in vitro fertilization), surgery, endometriosis and oncology, and it also has a place in both the medical and administrative aspect of following up patients.

Slide 5

Another completely new field is that of prevention thanks to the implementation of predictive medicine supported by the collection of all data constituting big data and which opens a new field of medicine capable of predicting the occurrence of a pathology or a cancer. This will make it

possible to propose lifestyle regulations, which sadly run the risk of becoming both very prescriptive and very restrictive.

Slide 6

1/ <u>Obstetric ultrasound</u>: we are entering a very particular dimension with the notion of the sonographer augmented using AI or the use of robots.
Indeed, one can use either selfguided robots or robots guided by the patient herself to obtain ultrasound images as you see on the slide.
The images are acquired by the robot with the same quality as a very highlevel expert sonographer since all the recommended views will have been imaged. The robot will not forget a view, and these will be analysed thanks to artificial intelligence with a proposed diagnosis given within a few minutes, much faster than the expert sonographer. The patient will be informed of the result straight away.
This reduces the waiting time between the examination and the diagnosis, a delay that is classically described as a source of stress for the patient.
In this facetoface situation, the robot and AI will be much better than any doctor could be!

One can also imagine robots being made available in resource-poor areas which will allow:

- Access to care in regions deprived of doctors or caregivers.
- Reduction of inequality in access to care.
- Allowing the robot to provide information… some people happy to accept a consultation with an “avatar” of the professional.

Slide 7

Coupled with prenatal diagnosis software, and with blood samples for the mother and/or for the child or also from amniotic fluid, it will be possible to give an opinion on the foetal phenotype or genotype.
These analyses could even predict a risk of cancers occurring later in the woman…

The future will offer machines the possibility of executing physical and cognitive tasks autonomously, which is going to interfere with our models and our ways of working.

Slide 8

2/ <u>In obstetrics</u> let us take the example of foetal heart monitoring during childbirth.
The midwife who monitors the different delivery rooms may be less attentive to a tracing because she is tired.
Artificial intelligence analyses in real time and has no variation in its performance. This allows better monitoring with an impact on the children’s condition at birth since studies have shown a 28% decrease in transfer to resuscitation with these monitoring systems.
These tools could even be used to screen for diseases such as preeclampsia.

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3/ <u>In radiology</u>, the typical example is that of mammography.
A study compared the performance of two radiologists working together versus one radiologist assisted by AI for analysing mammograms.
The detection rate is better when the radiologist is assisted by artificial intelligence than when he/she works with a colleague, with a cancer detection rate that rises to 6.1 versus 5.1 and an error rate below 0.1%.

It should be noted, however, that although artificial intelligence can help experts, it can nevertheless mislead less experienced radiologists. As you see on the slide, artificial intelligence coupled with mammography makes it possible to detect suspicious images that could go unnoticed in standard interpretation, and it informs the radiologist of this anomaly.

Slide 10

4/ Where **assisted reproductive technology or ART** is concerned, artificial intelligence has come to play a very particular role. The treatment of infertility concerns both the woman and the man. Progress on factors likely to modify fertility are multiple: clinical, biological, genetic, oocyterelated, spermrelated, psychological… difficult to keep up with even for expert clinicians and biologists.
AI now decides on the choice of the stimulation protocol and participates in medical followup but also in psychological support through virtual assistants.
AI also allows the laboratory to select the oocytes for ART better than the biologist (Salih M. and H., Human Reprod, 2023).

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5/ In oncology, which is an increasingly important discipline, I'd like to point out that in France there are 52,000 new cases of breast cancer per year.
Treatments in oncology require an analysis of increasingly numerous and highly evolving data, both clinical and biological, cytological and genetic, etc.
The analysis of multiomic data (DNA/RNA/protein – genomic or proteomic data) allows personalized analysis, reducing false positives and false negatives in the case of ovarian cancers for example, and helps in the choice of what treatment to give.

AI also intervenes in monitoring the therapeutic pathway and in research and clinical trials.
AI could make it possible to test proposed treatments on virtual twins. These twins could also be considered within the framework of therapeutic trials.

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6/ Surgery and training.
In these fields, artificial intelligence could help the surgeon through computerassisted vision or prepare the operation on a virtual twin.
One can even imagine in the future an operation performed by a robot but controlled by the operator.
For training, whether initial or ongoing, simulation on mannequins is already used, and the arrival of artificial intelligence would make it possible, thanks to the use of these virtual twins, to improve the acquisition of knowledge and above all, the performance of the learners.

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Artificial intelligence is already used to answer the 10 most frequent questions asked by patients (ChatGPT 4.0, Claude, Bard…) but also to identify what the patients need. This meets the needs expressed by user associations who complain that professionals don't give them enough time and don't listen enough.

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During medical consultations, the new generation of artificial intelligence makes it possible to restore doctorpatient contact by completely freeing the doctor from notetaking. The doctor is no longer hidden behind his computer as with the first versions of computer tools but finds again his

place face to face with the patient. Indeed, with newgeneration artificial intelligence, the interview is recorded and AI produces a report with proposals for treatment within a few seconds of the end of the consultation – and does it much better than we doctors can do.

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B/ After this overview, we will look in detail at some elements concerning artificial intelligence because **it is important to know what we are talking about**. As you can see on the slide, the possibilities of using artificial intelligence in medicine are multiple with different guidelines and a variety of levels ranging from socalled weak artificial intelligence to artificial intelligence which is self-aware, whether machine learning, deep learning or generative artificial intelligence. AI has become unavoidable in medicine and in society with enormous speed of growth since, as you see, its expected growth in 2030 is estimated to be by a factor of 10, not to mention the financial impact estimated at around 45 billion dollars in 2023.

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We can thus measure the impact of the arrival of artificial intelligence in medicine in terms of conceptual change for doctors and for patients.
What can we say in the face of this future which seems absolutely glowing, since we can obtain a faster diagnosis, a treatment better tailored to the individual, betterquality support available 24 hours a day and in all areas, a reduction in inequalities of access to care, an absence of violent behaviour or knee-jerk reaction?

No-one can deny that artificial intelligence has become an essential tool for ensuring medical quality. It is a new partnership; doctor / patient / artificial intelligence. AI is in fact used by the doctor but also by the patient… to check the information given by the caregiver!
Refusing to use artificial intelligence in our practice can today constitute a loss of opportunity for the patient.

C/ Despite these extraordinary advances, **questions remain unanswered regarding the use of artificial intelligence.**

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a/ When it comes to **the organization and structuring of algorithms**, we can take a simple example as indicated on the slide for the diagnosis of preeclampsia. We have a 28yearold woman from the Maghreb, primiparous, with gestational hypertension. The algorithm used gives the result as low risk, requiring standard monitoring. Fortyeight hours later she develops eclampsia… Analysis of her case after the event shows that the algorithm was developed on women 94% of whom were from Northern Europe…
This highlights the need to have algorithms tested on different populations. But what to suggest for those who do not have the means, or for countries that don’t possess these technologies?

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b/ Questions also arise about **the evolution of the models used**. How can we know the evolution of algorithms if the data changes due to the appearance of new viruses or new practices. Who will verify the training models used by the artificial intelligence. As you see on the slide, AI can function independent of any medical oversight.

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The difference provided by artificial intelligence with a “human in the loop”.

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Some artificial intelligence can become autonomous through selfenrichment techniques!

How can they be monitored when **professionals do not have access to the platforms that manage the artificial intelligence?**

c/ There is the issue for doctors of **the risk of a loss of capacity for critical analysis** or "deskilling", associated with blind trust in AI.
Issues will also arise for those generations who will have basically been educated and trained by artificial intelligence.

d/ Issues concerning **the relationship between doctor and patient**:

- Should the patient be aware that an algorithm is playing a part in their management?
- Could one envisage a situation where a patient's management is entirely carried out without any in person checking? Is there any place for the role of autonomy, of considering the patient's opinion, for the responsibility each person has one for the other?
- How will the history and lived experience of the patient as originally shared be analysed, given that the robot only asks questions it has been programmed to ask?

Each person's unique history can't be revealed by a series of closed non interactive questions.

- What to say about the speed of access to a diagnosis which may be poorly experienced in the absence of any preparation in advance, particularly the prenatal diagnosis of a malformation?

We are looking at the delivery of brutal news which may be more difficult to live through. We are looking at a "space time" rupture (Michel Serres).

e/ Issues concerning **this technology at the level of society.**
Remember that there are already 11,000 data centres in the world needing 560 billion litres of water per year to cool them…

f/ Issues concerning **access to personal information with big data** which on the one hand allows us to put in place medical follow up or auto surveillance, but on the other hand gives access to personal information to companies and industry without the patient or the doctor or administrative supervision having any control over how it is used.

g/ AI doesn't have any affect, sensitivity or emotions. Artificial intelligence answers a question in the way it has been formatted and gives an impression of acceptance which can be reassuring. But **the algorithms have no conscience and don't declare who is financing them.** It is a commercial tool. What place is left for the relational interaction between the doctor and the patient they are treating?

h/ Issues concerning **the storage and use of the data** which will allow the establishment of predictive medicine and even preventive medicine…
It's the promise of a better future!
This data may, however, result in lifestyle regulations being imposed on the population and justified by the concept of "living well" whose modalities could evolve according to the current political regime in power.

On the personal level, since they are not ill, the individual could decide health objectives for themselves according to their own data, leading to precautions provided by artificial intelligence and other on-line sources which could lead them to ever greater personal demands and sources of stress, all the more serious if the illness appears one day in spite of their efforts, without any medical checks!

These are just a few issues concerning artificial intelligence to open the discussion before we embark on seeing how traditional medicine can challenge artificial intelligence.

D/ Traditional medicine versus artificial intelligence.

Faced with the promise of high-quality medicine accessible to all people everywhere, does traditional medicine still have a place, an original or useful contribution to make? In the closing stages of this talk I would simply like to propose a few questions, some remarks to stir up debate.

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If a certain standardization is necessary, how can traditional medicine play a role?

Slide 22

If a minimum of standardization is necessary for safety, how does traditional medicine play an original role?

Illness creates a split for the person in relation to their body, their image, their environment, their history, and their perception of themselves.

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The question for the doctor is to reflect on how their words and their attitude can potentially restore this broken link and reconnect the person with themself.

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As Denys Le Coq says, the doctor “through his support can allow the patient to reconnect with a source of life… which can illuminate their existence” in order to rebuild the past and sort out the future.

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Listening to the unspoken question can happen through an interaction which artificial intelligence, in its neutrality, will never be able to attain, just as it cannot interpret the patient’s words expressing their distress.

It will therefore be up to the doctor, through their curiosity and their interaction with the patient, to give medical meaning to the patient’s words.

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Thus, the traditional medical consultation is sometimes incomplete but comprises the richness of the doctor’s attitude towards the patient. Speech has a very particular place:

– through interactive and nondirective listening,
– through the gaze that says to the patient “you are valuable to me”,
– through gestures that reassure,
– and beyond that, through behaviour attentive to the body when words do not communicate.

And even when words are not explicit, or impossible to express, the doctor demonstrates behaviour which restores confidence thanks to reassuring nonverbal communication.

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However, medicine does not exist on its own within society.
We know that the economy, media exposure, and the place of artificial intelligence have become unavoidable elements in the transformation of our practice.

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Without being naive about the games people play which may lie behind promises such as the Gilgamesh project (question of human enhancement, the augmented body, and the development of the artificial human being).

Slide 29

We must not forget the role of the biotechnology market because the economy is one of the elements that impacts the evolution of our practice the most by promising a radiant future through the arrival of science and technology.

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We are all “on board” with this process because, for each of us, the integration of medical and biological norms concerning health, procreation, life and death happen in a fairly banal way, as said by Laurence Gavarini.

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In contrast, when it comes to the law, it is essential to affirm that artificial intelligence, just like other technologies, cannot be its own judge, as the jurist Labrusse-Riou says, because every technology tends to use itself to justify itself, refusing any rulings from the fields of ethics or law.

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In this context, there is no need to demonize or trivialize artificial intelligence but to emphasize that technical competence alone will never prejudge the value of the proposed solutions, because it will always be necessary to identify the human, social, economic, political, and spiritual stakes…

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Thus, the place of artificial intelligence in obstetrics and gynaecology has become indispensable but raises numerous questions, whether:

- for medical norms regarding health in general,
- for the development of predictive medicine and what impact it will have,
- for the protection of individuals
- for law and ethics.

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It therefore seems essential to promote an ethical and collective intelligence.
It is a fine challenge… it is up to us to step up…

Slides 35–36

As some people invite us to do…